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INFLUENZA—HISTORY OF OUTBREAK IN MANCHESTER AND DISTRICT.

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A TERM so commonly used as Influenza, and for such a variety of ailments, is misleading; nor is its use confined to various forms of the same disease, but totally different and distinct diseases are indiscriminately described as Influenza—both by the profession and the public.

We are justified in regarding as one disease various forms, if they are only different manifestations of the same disease, possibly due to the state of the patient, his surroundings, or any accidental or natural circumstance, or a combination of these—for example, Glanders and Farcy, or the three forms of Scarlatina. In these, though the source of infection be identical, the manifestations may vary in each subject.

In Influenza and its various so-called forms, this does not occur. Catarrhal Influenza—one of the commonest ailments in a town, especially affecting newly-arrived horses—may have various forms, as Catarrh or submaxillary abscesses, from a common source; but no one has yet seen a typical case of the true Pink Eye type produce Catarrhal Influenza, or *vice versâ*. I maintain that this is a separate and distinct disease, due in all probability to its own particular micro-organism, although this has not as yet been discovered; and, further, that the three forms of Influenza —so called—are three separate diseases.

The following facts afford strong evidence in support of my theory:—

In September last, at a small brewery where only two horses were kept, a four-years old, recently purchased, was attacked with

Catarrhal Influenza. On seeing it, we advised its removal to our own infirmary, in order, if possible, to prevent the other horse being infected. The mischief had, however, been done, and in a few days the second horse was under treatment for the same complaint in his own stable.

On October 6th, when the first cases of the present epizoöty were brought in for treatment, the first horse referred to above was in the convalescent stage; the Pink-Eye cases were placed in separate but adjoining boxes. On October 13th the brewery horse was discharged, to all appearance in good health, but he had spent a week in our premises with infected animals. On the 16th he was brought back to us, presenting well-marked symptoms of the epizoöty, and in five days his stable companion was affected with the same malady.

We have here two animals suffering from Catarrhal Influenza in the latter part of September, and by October 21st both are affected with the so-called Pink-Eye Influenza. If these were only different forms of the same disease, this would not have occurred. It is also evident that the one horse was in both instances the means of carrying the infection to his companion.

I have the strongest objection to the American term "Pink Eye," but until we, as a profession, are agreed upon some more appropriate and scientific name, "Pink Eye" will reign supreme. The public use it, and we, as practitioners, are forced to adopt it. The following will illustrate this:—A horse was required to take the place of one affected with the prevailing epizoöty, and one was hired. The latter ultimately died, and the owner put in a claim for compensation. The contention was as to the source of infection. I asked the owner if he had no sick animals at all in a stud of eighty horses, thinking that in that number there would be surely sickness of some kind; his reply is the point I wish to call attention to. "Well, yes, we have seven or eight with Influenza, but no Pink Eye." To him Influenza was Catarrh, Congestion of the Lungs, Pleurisy, anything, and not a very serious matter; but Pink Eye was a disease disorganising his business, and killing ever so many of his horses.

At the present time, tell a Manchester horse-owner that his horse is suffering from Influenza, and you excite no alarm; but mention Pink Eye, and the result is very different; the one is a trifling matter, the other is a calamity.

History of the Outbreak.

I am labouring under a disadvantage in giving the history of the outbreak, not having had an opportunity of asking the other members of the profession their early experience of it. Several

I have mentioned it to had seen no case anterior to the date on which we saw our first case; and certainly we had the first death, if the information we received at the slaughter-yards in answer to definite inquiry was correct. On the 6th October, 1890, during the close, damp, sultry weather, in a town stud of ten horses, we had our first cases in this outbreak (the most serious of the three I have seen in twenty-five years' practice). No new horses had been purchased; they had not been in any strange stables; their work was regular—delivering goods to the warehouses in town; so that the infection must have been either atmospheric, or derived from other horses whilst standing about in the streets—the latter, most probably, from some previous case. If any member of the profession had cases prior to this date, I should be glad of particulars. I am strongly of opinion that the disease spreads by contact, cohabitation, and atmospherically. In this case, having only ten stalls, and there being ten horses all in full work, it became necessary to make some arrangement for carrying on the work; so that each case, directly it was detected, was removed to our infirmary, which soon became infected, and of eleven horses therein of my own and client's at the time, nine contracted the disease in spite of every precaution—coke fires, separate attendants, isolation, sick upstairs and healthy downstairs. After the first affected horses were removed their stalls were disinfected, and coke fires were burnt in the stables. Other horses were hired as required; of these—five in all—two became infected. One we treated, the other was removed by the owner, and although to all appearance healthy at the time, it afterwards died, as well as two others out of a stud of four; and unless others were infected from this source—which we doubt—this ended the outbreak so far as these two infected places were concerned. Horses coming to be shod at the forge did not contract the disease. Our next experience of it was on the south side of the town, whilst the previous cases had been on the north.

Ebbing and flowing, it has continued up to the present time, January 12th—over three months. We have now many patients, and there are, I believe, more cases under treatment than at any time during the outbreak; so that it must soon, at its present rate of progress, die out for lack of animals to furnish new victims.

Weather.

During the three months the weather has varied from close, oppressive damp, to many degrees below zero; the average temperature of December was the lowest for a century; but notwithstanding the low temperature and seven weeks' frost, with slight thaws, there had been damp and a good deal of fog. South,

east, and north have been the prevailing winds. Weather is said not to affect it; but there is one fact that I cannot account for in any other way, and that is, one day all your cases over a large area will be decidedly better, another day all will be found worse—not a single one making satisfactory progress. We have verified this over and over again. In referring to a record kept of the various outbreaks we have had, it is found that they commence, as a rule, in October during warm weather, and have disappeared when bright cold weather has followed. But the cold frosty weather has not checked this outbreak, though its renewed energy has generally followed one of the temporary thaws that have occurred.

Damp is favourable to its development, and our worst cases have been in damp, low-lying districts; whilst damp stables furnish the most serious cases, and a heavier percentage of animals become affected when location and sanitation are bad.

Symptoms.

There has been a strong resemblance between the Influenza affecting man last spring, and this Pink Eye in the horse. The symptoms and terminations have been identical; but the disease is not transferable from man to horse, or *vice versâ*.

The symptoms are well marked and easily distinguished. Loss of appetite; swollen eyelids, with flow of tears down the face—in many cases only one eye is affected; swelling of the extremities; dull, listless appearance; heavy head; disinclination to move; in others there is, without much movement, a constant lifting of the limbs, as if unable to get into a comfortable position for standing. The swollen extremities were not constant symptoms; in some an eye would be swollen, and the limbs entirely free, perhaps more so in the early stages, and with well-bred animals. If any wound or injury were present—as recent broken knee—that limb would swell to an enormous extent; also legs that had been subject to Lymphangitis became elephantine in dimensions. If compelled to move, there was staggering gait. There was also great stiffness of the lumbar region; indeed, this is a part often seriously affected.

Temperature.—In a few cases it reached 106° Fahr., but it was generally 105° in fresh cases, and then fell shortly to 103°. The outbreak has not been distinguished by high temperature.

Pulse 60 to 90, and sometimes more. The pulse has remained high in proportion to temperature. In one case, after recovery in every other respect, the pulse remained at 80, then at 72, for a fortnight, ultimately falling to normal.

The appetite has been bad, many refusing food entirely; whilst

in all there has been a most marked aversion to corn ; hay, carrots, or a little bran they would partake of sparingly. But in most of the cases the limbs were so stiff that the patients would not move to get food, though they would take a little if fed by hand. All have shown a disposition to lie down, even the fatal cases (excepting two or three, in which there has been gangrene of the lungs). The danger in many cases—what with the great debility and prostration—was when they have gone down they have been unable to rise again.

Colicy pains were evinced in several cases, accompanied by diarrhœa, and in two in which we were enabled to make a *post-mortem* examination there were signs of well-marked Peritonitis. The bladder was affected in two cases, showing that the microbe (?) may locate itself in any organ—certainly not always the lungs. Next to the debility, gangrene of the lungs was to be feared ; but in the statistics further on I shall enumerate the causes of death. In the majority of cases, the disease appeared to run its course in about twelve to fourteen days ; whilst the convalescent stage in the severe cases has been prolonged to a month.

Treatment.

Some authorities say medical treatment is not necessary, if animals are placed under favourable conditions ; but with this I do not entirely agree. It is a very decided advantage to have warm, dry, well-drained and ventilated stables, and never since I have been in practice have I been more convinced of this than during this outbreak. Horses that have for years to all appearances continued in apparent health, in stables that were devoid of the very rudiments of sanitation, have furnished the most serious cases of gangrene of the lungs.

Our medical treatment has been quinine, ammonia, aconite, carbolic acid, and stimulants.

In the worst cases, with pulse from 80 to 100, we have given Quinine, ℈i. twice a day, and a draught three times aday composed as follows :

Spt. Amm. Arom.	℥ii.
Eth. Sulph.	ii.
Tr. Aconite	m. v. in a pint of cold gruel.

When there was exceptionally high temperature, aconite to drink in cold water was given every two hours, until there has been a reduction in the temperature. Scores of cases we have treated with 10 m. doses of pure carbolic acid, with ℥ii. Glycerine, in a pint of oatmeal gruel three times a day. In cases in which there was the slightest tendency to gangrene of the lungs, this

has been a most valuable remedy. Also inhalations of steam from hot water, with ʒii. each of carbolic acid and turpentine added, have been most beneficial.

In the cases of patients which have refused all food, we give two wineglasses of whisky in a pint of oatmeal gruel three times a day. After this the worst cases will often eat a little. If stimulants are given they should always be combined with nourishing diluents; because if given in water on an empty stomach they are injurious, but with milk or gruel they are highly beneficial.

We have removed the shoes in all cases giving indications of the rheumatic pains in the limbs. The three medicinal agents—carbolic acid, quinine, and ammonia—have been serviceable in allaying these. Where headache has been a very marked feature—in some cases it has been so bad that the poor animal was unable to support its head—we tried Antipyrine, but with no benefit.

Tonic treatment has been principally small doses of Liq. Arsenicalis, especially in those cases in which there was œdema of the extremities. My assistants have objected to my small doses of this drug, but 10 m. doses two or three times a day in the food obviates the necessity for administering medicine, and in a short time there is a most marked improvement. Diuretics and depletives are injurious, and should be avoided.

I have been greatly astonished to find in our visits to the slaughter-yards, that great numbers of cases in this district have had their sides frightfully blistered. To me this savours of the heroic treatment of the dead past, rather than what would be expected from present-day treatment, which is supposed to be based on scientific principles. Is the disease due to a microbe in the system, with tendency to become localised in its injurious effects in certain organs? If so, would not any irritation tend to increase the flow of blood to that part, and thus help to produce the very thing it is desirable to prevent? Even if it were not barbaric, it has another disadvantage; it prevents the animal from working for weeks, which it otherwise would have been able to do. Taking the number of horses affected in this outbreak alone, had they all been treated in this way, it would have doubled the loss to the public through loss of service, besides the number it must have destroyed.

Isolation.

The facilities in towns for complete or satisfactory isolation are often very few, where many horses are kept in a number of stables. You may, when the cases are numerous, set one or two of the stables apart for the infected ones, but where every stall is occupied, and there is only one stable, isolation is impracticable. I believe the disease to be highly infectious and contagious; but

for reasons just given, and the great number of cases, we have been able to do but little isolation. Strange to say, the number attacked has been about equal where the utmost has been done as regards isolation, and where we have just treated the sick in their own stalls. In many cases the only available place to remove the first patient to would be a cold, uninhabited place, quite sufficient in itself to jeopardize the life of the animal; and when you get two-thirds of a small stud affected, isolation is impossible. In our first outbreak, we removed every horse directly it showed the slightest symptom, and yet every horse but one became affected. This was, in spite of the isolation, the heaviest percentage of affected animals per stud.

In another lot of forty-seven horses, where they were all under one roof, and no partition was more than 7 ft. high—but it was a very lofty, well-ventilated stable—only fourteen were affected, and each case was treated in its own stall (they were *stalls*, not *bales*). These cases occurred in October, when the epizoöty just at the time appeared to be on the decline; they were milder, so that I do not regard this as very strong evidence. I am inclined to the belief that the earlier stages are the most infective, and not the convalescent period; or it may be that the microbe invades a stable, as in some cases where nearly every horse was affected on the same day; in others, however, they became affected individually at intervals of ten days to a fortnight. They rarely take it consecutively as they stand, but one here, another there. A tired, debilitated, or chilled animal is more susceptible, and an animal standing perfectly idle in good health, rarely takes it. About one-third of those in the infected stables have not contracted the disease.

Summary.

The rate of mortality has not been high, excepting when the attack was associated with complications.

Old age, debility, shivering, and Lymphangitis have increased our death-rate 50 per cent.

Our gross death-rate up to the present is $8\frac{2}{3}$ per cent., and causes given above account for half of them.

In old and debilitated subjects, when they would be recovering from the attack of Influenza, the weakness and loss of power in the hind extremities would prevent their getting up after lying down; we have had to destroy a number of these cases.

In the earlier part of the outbreak, we had cheesy deposits in the lungs; these were inspissated pus, but there was no inflammation proper of the lungs. In the fatal cases lately, there has been gangrene of the lungs, marked by fœtid discharge from the nostrils; but with inhalations one or two of these have recovered, possibly

to break down sooner or later with a relapse of the lung mischief. I remember some years ago having been completely at a loss to account for horses in apparent health suddenly dying after exertion, with badly degenerated lung tissue. These were no doubt relics of a former attack of Influenza.

"STAMPING-OUT"—AND ITS VICTIMS.

BY C. CUNNINGHAM, M.R.C.V.S., SLATEFORD, EDINBURGH.

A RETROSPECT on the last two or three years is of some interest, and teaches a few lessons.

It is well occasionally to look back on the way by which we have reached our present position. Much is said now-a-days of the progress of the profession; of the advance of its members in science and scientific procedure; of their care for, and humanity towards dumb animals; of the increasing dignity of the veterinary surgeon, his observance of etiquette, and his recognition by the State. Bearing this in mind, let us quietly look at some of the measures that have been practised for the extinction of Pleuro-pneumonia, as they have come under our notice.

Surround the premises with the restrictions of the Act,—engage a slaughterman, stay and watch, as I did, the scene which followed. A nice little healthy quey a few weeks from the calving; a sickly-looking septic subject; two incipient cases; a fat cow with a cyst; four tubercular subjects; a few calves; two very fine healthy dairy-cows just over parturition,—and so on,—when there were no more to kill, the Pleuro-pneumonia fire was put out at that place.

Make an "infected place," describe an "infected area," and then take all the animals from the stalls, and travel them along the roads and streets to the public abattoir. There the poor thin milker is carefully dressed—the gravid uteri and the well-filled udders laid aside,—the moderate appearances of Septicemia and tubercle "localised,"—and "the fat and the lean, the young and the old, the pregnant and the newly-calved, the sound and occasionally it is to be feared the questionable, have many a time furnished food for the lieges."

An owner bought a Cumberland cow, and placed her among twenty-eight others, and the eight and twenty in-contact animals were travelled six miles along the turnpike road, and at the slaughter-house were found all free from Pleuro-pneumonia. A Mid-Lothian farmer inadvertently placed an affected subject beside forty shorthorn dairy cows. As a measure of prevention, he inoculated

his stock. And six weeks afterwards, the whole herd was driven nine miles along the public road to the city, and on slaughter not a trace of the disease was met with in any of the animals. A dairy-farmer bought two Cumberland cows, and put them alongside thirty-six others, for one week, in a new, beautifully clean, well-ventilated byre. These thirty-six in-contact animals were on two occasions gone over with the thermometer—an interesting study. $100\frac{2}{5}^{\circ}$ to $102\frac{2}{5}^{\circ}$, three-fourths of the number at $101\frac{1}{5}^{\circ}$; they were perfectly healthy, yet on the representation of a travelling inspector these cows were driven a couple of miles to the abattoir, and not a vestige of Pleuro was seen after death. From an infected place out of an infected area, sixteen dairy cows were driven three miles for slaughter, and at last a patch of old Pleuro about three inches square was found.

One hundred and twenty healthy animals killed for a patch of Pleuro about the size of a couple of oranges! That's not very much. "A cow has only to die once." "Better kill two hundred than let one escape." Veterinary surgeons, humane men, of kindly nature and good intentions, have stood in spirit, if not in body, in the various slaughter-houses throughout the kingdom, and seen hundreds and thousands of perfectly healthy animals in all stages of development done to death, and quietly turned and said, "There is no blood nor cruelty on our hands;—'tis the noble, the patriotic work of extirpating Pleuro-pneumonia." Inculcate humanity on the students, tell them to be most careful in the use of "the twitch," but tell them also wherever they find Pleuro-pneumonia there, to pound the brains and sever the jugulars of every animal in contact, be the number ten or ten hundred. "Stamping out is the salvation of the country."

A small Irish dairyman—about 100 yards from our door—had a dozen nondescript cows. We stamped him out in September, and we were brought back in December to repeat the process, and twenty months afterwards we left him to the official attentions of our successor in the Inspectorship, with a fair lot of dairy animals. He has been three times stamped-out for Pleuro, and once for Swine-fever, but he is wonderfully content—he has got good compensation; possibly he would not greatly object to an annual visitation.

A client of ours had an outbreak in 1886 among forty cows, which under inoculation cost the county £40. He had a slight recurrence among fresh stock, which necessitated the expenditure of another £40, and for three years afterwards he was "free." This summer unfortunately he bought in a diseased subject. The local authority slaughtered his forty-six animals, and handed over a cheque for close upon £1,000. The worthy man retired from the cares and

worry of dairying life. Such good fortune might not occur a second time. He sublet his premises, the new tenant put in another forty cows, and in three months they too were swept away, and deep was the dissatisfaction this owner expressed at the compensation given. After deducting salvage, nearly £1,000 paid down for two outbreaks in one place within four months, is surely strange work and a fair sum. Grumbling, too, at good compensation is, we hear, the latest policy.

An old friend of ours had 113 shorthorn dairy cows, worth on an average £20, possibly £25 per head. Sixty-four stood in four rows in one big hall, forty-five in two long rows in an adjoining compartment, and outside was a smaller house with four animals, one of them a pleuro-pneumonic subject. The little byre was taken, and the big byre left.

It was represented to this owner that if stamping-out was practised, the compensation would amount to £2,200, if not £2,500. If the animals were killed within the statutory ten days, the premises might be cleansed and disinfected, and refilled to a great extent in a very short time, but somehow the prospect had no charm for him. "Kill off all my cows, empty my byres, ruin for the time being the business which it has taken me years to build up. I'll report, and inoculate. I'll bear all the expense myself, I wish little or nothing from the rates. I'll send all my inoculated cows straight to the slaughter-house for trifling compensation. I'll do anything and everything, only don't stamp me out all at once. The man who says stamping-out is best for me must be an ——, and the process itself an accursed shame." This we presume is what is called a "selfish" man.

A Scotch dairyman, very keenly alive to his own interests, had the misfortune to buy in Pleuro-pneumonia to his dairy of fifty-one cows. He appears to have been in no hurry to report, for there was one death, and, on slaughter, twelve found affected. Yet forty-six of these animals were driven by the authorities four miles along the public highway to meet any one's cows; by the merest accident they missed mingling with a dealer's fresh purchases off an early train. The compensation paid to this man was £1,073, and the salvage obtained for his cows £513. Cost to the County of Mid-Lothian, £560.

A dairyman was in the habit of buying the best and most high-priced cows in market, £28 and £30 was a common price with him, £35 not too much at times. He has been three, if not four times cleared out. At one of the stamping sales there were only two principal buyers of the carcases—the salvage did not exceed £4 per head, and on the last occasion the compensation was £780 and the salvage £350—loss £430.

A canny Scottish farmer rarely paid £19 for a cow, seldom so much, yet when his stock was slaughtered off he took care to have his own cattle-salesman as the valuator, and his compensation was at the rate of £20 5s. per head.

For nearly three years now our stamping-out friends have had it all their own way in this district. For the first two years (1888 and 1889) we had scarcely any Pleuro-pneumonia, but last summer saw a change. Our friends have slaughtered here and slain there. They have killed, as we have said, one large dairy of upwards of forty cows twice over in a few months; another, also of forty animals, stamped out a year ago, has again been cleared, and the process has been partly repeated at a smaller place where about a score are kept. Six, if not nine, fresh outbreaks, and the destruction of three hundred dairy cows in one small district in little over six months, is warm work. This is "making the money go and the blood flow, and at the end of three years they are stamping out still." Only a week or two ago, upwards of thirty milkers were "stamped out" within a mile of us. The expense of Mid-Lothian County from May to the middle of last summer for stamping-out alone was £6,000. In to-day's paper, too, we read of another "Carrying-out of the Slaughter-order." Sixty animals, some of them pedigreed stock, are being summarily disposed of, for one cow said to be diseased, out of five slaughtered and found healthy.

Down at Eaglesham, too, a month ago, from a report in the *Scotsman*, we learn that the "killing-out went on for two weeks without intermission." They had killed off about 500 animals—there were 100 to follow, and the present expense was nearly £5,000.

This is stamping-out in its real and true colours. The "Sovereign Cure," "which never fails," repeated again and again in the same premises. The "brutal system, which is yet to be the victor"; the beneficent process which is "to rid the country of its bovine scourge," "without decimating the cattle," "at one twentieth of a penny in the pound on the rates"—the much vaunted system, "which has been done, and can be done, and will be done all over the kingdom," and which will bring "great honour to the veterinary profession."

Crush in the frontal bones, let out the life's blood of every affected cow and every animal in contact—repeat the process week in and week out, month after month, year after year, you may possibly some time come to the end of Pleuro-pneumonia; but is the countenancing and aiding and helping in work of this kind befitting and congenial to the calling of a veterinary surgeon—is this a thing to be proud of? Will work of this sort elevate and

raise him, and honour and benefit the profession to which he belongs? Assuredly not, in our opinion.

Has stamping-out even been best for the country at large during the last three years? Could no other more humane, scientific, and economical system have been tried and tested? What has science ever done for Pleuro-pneumonia? we are asked, and we answer, "Much; a great deal more than can apparently be conceived or believed." What in return may we quietly ask has "slaughtering-out" done for veterinary science and practice?

The spectacle of good veterinary surgeons—men of standing and position—of education, science and skill—whose art is healing and the prevention of disease—distinguished it may be for humanity to animals—leaders and lights in their profession,—the spectacle, we say, of such men entering our common cowhouses and byres, and granting "Declarations of disease," whereby tens and hundreds of poor animals are ruthlessly hurried off and butchered, is an anomaly which we really do not understand nor admire. We wonder how the men can do it. What is this but a miserable confession of the utter inability of their profession as a whole to cope with the disease, and the handing of the whole matter into the hands of the cattle-salesmen and butchers?

Finding during the long forty years or so that Pleuro-pneumonia has raged in the country, no instruments in science and practice wherewith to combat the malady, but calling loudly for a Contagious Diseases Act and the Slaughter-order. Coming to society meetings and denouncing the office and duties of Inspectorship under the New Act as beneath their dignity, and going quietly home and associating and consulting with gentlemen outside the profession, and doing all in their power for stamping-out. Publicly proclaiming the virtues and success of inoculation; holding up as it were in one hand an inoculated cow as a "monument of its efficacy," and beckoning the whole profession with the other to come and view the effects of inoculation on the bodies of its victims." Called in to consultation, every kindness shown them, and then writing an ungrammatical ambiguous certificate no matter what the result. Is this etiquette—is this the conduct which should characterise our ranks?

The County or City Inspector, too, accompanied now generally by a travelling-Inspector, comes rushing from a distance, and usurps the place and pockets the emoluments which should rightly fall to the local veterinary surgeon—if worthy. A £1,000 bill to the County Inspector of the big stamping-out County. A Christmas cheque for £300 to the stamping-out Professor. Smaller sums to the district inspectors, and a gratuity to the local veterinary surgeon, who reports. Continuous employment, easy

work, a handsome salary, and every expense paid, to the retired naval and military gentlemen. Occasional work, difficult and uncongenial duties, scant and precarious remuneration to the professional man. We fear this new Pleuro-pneumonia Act has not been very conducive to the observance of etiquette, nor the promotion of equality and brotherhood. Its honours are more delusive than real.

But we are told stamping-out is going to be successful. Soon Pleuro-pneumonia will be of the past, its remains preserved in spirit in public and private museums. That day has been long in coming, and has not yet arrived. But what, on the other hand, we may ask, is to prevent stamping-out from being a success? A Reserve Fund of £160,000, laid aside for its use. The Board of Agriculture, and all the Local Authorities on its side. A host of inspectors, and constables, and slaughtermen, salaried and paid to carry it out. Would it not be a shame and disgrace if such a system did not succeed? And yet, in many respects, it has been an admitted failure, and the end seems distant.

£160,000! What could a dozen really good inoculators not do with such a sum. Why, the poor advocates of the system never received a silver sixpence, nor a smile from Government; and yet their work, we say most advisedly, compares more than favourably in many instances with that of their stamping-out friends. We, for our part, are not ashamed, nor afraid, to lay our inoculative work and results here in 1886, side by side with that done by our stamping-out successors in the same district this summer and winter. We never killed off three premises twice in eighteen months, nor prematurely destroyed 300 animals, nor spent £2,000 or £3,000 of the public funds, and the premises at the end of 1886 were just as free from Pleuro-pneumonia as they probably are at the present moment. Had we had, too, the command of a few of the hundred pounds so liberally provided for our opponents, we could have hurried the milking and fattening process on, and sent our inoculated cows with their shortened tails, straight to the slaughter-house, grand specimens of "bovine obesity;" very different from the poor miserable objects we often see carted or driven for immediate slaughter in the custody of smiling salesmen and drovers.

We know, of course, that it is of little, if any, service to write thus. The "flowing tide" is with our stamping-out friends, though the frequent recurrence of disease and the sea of blood around them often makes them pause. We believe that the pitiless process of stamping-out will go on to the bitter end, and the sooner it is over the better. Our congratulations may perhaps be tendered some few years hence. Meanwhile, we infinitely

prefer our old inoculating system to the scenes which have been enacted near us during the past six months. We prefer "our own observation" to that derived even from "octavo pages of foreign and continental literature." Inoculation we look on as science and surgery, the proper work and sphere of the veterinary practitioner; and stamping-out as simply butchery, fit employment only for cattle-salesmen, slaughtermen, and possibly travelling inspectors.

Our schools are filled with students; every effort is being made to train them scientifically and practically. Men talk learnedly and earnestly of microscopy, bacteriology, pathology, and such like, and what is the end and goal as regards Pleuro-pneumonia? Simply the cattle-driver and his stick, the slaughter-float, the blue apron, and the poleaxe. We are glad we have nothing to do with such a process. We prefer another and a more merciful way.

THE ERADICATION OF SANDCRACK.

BY J. C. JAMES, F.R.C.V.S., THORNBURY.

MANY and various are the methods employed in the treatment of sandcrack. Many excellent appliances have been invented by veterinary surgeons for the alleviation of pain in this lesion of the hoof and foot of the horse, so as to enable the animal to perform the work demanded from him by his owner.

Clamping, plugging with wood, and other modes of treatment have been employed successfully; but these are chiefly mechanical and palliative, and although the horse performs his work well and free from lameness, the sandcrack is not eradicated unless other treatment is conjoined.

Also operative surgical treatment has been resorted to for the radical cure of this disease, viz., cutting out or stripping, the French operation of stripping, and the V-shaped operation described by Professor Walley in the June number (1890) of the "Journal of Comparative Pathology and Therapeutics."

The operation of stripping I have performed successfully, but the treatment I am about to describe is so simple and so successful, that I have been induced to suggest it to my professional brethren, merely as an unit to that which is already known, and ask them to give it a fair trial before criticising it, and then I feel assured that their criticism will be favourable. Perhaps the operation has already been performed by other veterinary surgeons, and they have not recorded it, or, if so, I have missed reading it.

I have adopted this method of treatment for several years, with great success. It consists in cutting through the *coronary secreting substance*, an eighth or a quarter of an inch above the extreme

visible upper limit of the crack. I use an ordinary thin firing-iron heated as for firing. First have the hair cut off the coronet, and plug or clamp the crack; or if this is not practicable from loss of horn, etc., it may be filled with tar-dressing and bound up with tarred-string.

Having secured the horse, have a couple of thin firing-irons heated as for firing, and cut across about an eighth or a quarter of an inch above the extreme upper limit of the crack, well through the coronary secreting substance (at right angles to the crack), till you can see the white fibrous tissue beneath. Two or three quick strokes with moderate pressure will accomplish this. The incision may be from an inch to one and a half inch in length. I have never known any harm result therefrom. I then apply a blister, and use some carbolised oil as an after-dressing.

On closely examining the incision made, a small dark spot will be seen in the divided part of the coronary secreting substance, which looks like degenerated tissue.

The animal may require a few weeks' rest, according to the severity of the case; but the cut will soon fill up and grow out, and if the crack is well clamped or plugged the horse will in a few weeks be able to resume work; and as new horn is formed and the hoof grows, the sandcrack will be eradicated.

I have treated some very severe cases in this way, with the most satisfactory results; and some of the horses were really useless, as the lesion was wide and deep, extending through the hoof into the horny and sensitive laminæ, and causing blood to ooze out at every step the animal made in progression.

A CASE OF FURUNCULUS.

BY J. A. NUNN, F.R.C.V.S., D.S.O., PRINCIPAL, LAHORE VETERINARY SCHOOL.

THE animal which is the subject of this communication, is a Caubal entire horse, six years old, the property of an Afghan horse-dealer. It was brought to the Lahore Veterinary School on November 20th, 1890, when it had a long shaggy coat, "having come from the snows in the Afghan highlands." On first examination it presented much the appearance, along the back and down the sides where the saddle goes, that would be expected after a scald or a severe blister—the hair and epidermis being matted together into crusts, and desquamating.

The owner said the eruption had come on four or five days previously. On washing the part and removing the crusts, distinct boils could be seen, some of which had healed up, but others were

suppurating, and "cores" could be seen in them. They varied in size from that of a threepenny-bit to that of a five-shilling piece, and contained from a few drops to half an ounce of pus. Altogether, I counted thirty-six distinct suppurating patches, besides several small ones that had dried up; they were entirely confined to the withers, back, and sides, underneath the saddle.

The animal was treated with a purgative dose of aloes, the diseased skin was washed, the hair clipped off, and the scabs removed. Five of the boils were opened, the pus evacuated, and an antiseptic dressing of carbolic acid applied; the others were dressed with a solution of acetate of alumina.

The animal was discharged convalescent on November 26th.

I am of opinion that the eruption was caused by the filthy muunah under the saddle, and the Afghan custom of never removing it for days together when on a journey. This custom must undoubtedly cause considerable irritation to the skin from the accumulated dirt and perspiration.

In my experience, Furunculus is a somewhat rare disease in equines, as I can only remember having seen two other cases.

ABDOMINAL GESTATION IN A MALE HARE.

BY FRED. C. MAHON, M.R.C.V.S., NORTH LONDON.

A FEW months since, I had given me a male hare of unusual size, and the weight of the animal arousing suspicions as to this phenomenon, I was induced at an early opportunity to make a *post-mortem* examination of the internal organs, notably those pertaining to the generative apparatus.

But before entering upon a minute *resumé* of facts and observations, I may add that the physiology of gestation—even in this advanced age—is, like bacteriology, in a transient stage. We all know and read of interesting cases met with in practice of changes, organic and otherwise, in the domesticated animals, for which we cannot adequately account to the satisfaction even of the scientist, which we must not mention to amateurs and clients, who expect of us clear and unhesitating opinions as to these things.

I was surprised when, on fixing the hare on its back, and opening the abdominal cavity to find adjacent to the left kidney at the time of opening a tumour. This growth weighed several ounces; in size it was as large as a large turkey's egg, if not larger. No uterus was presented, nor any of the uterine appendages; but I found a penis, scrotum, and testicles.

This tumour was forwarded to Professor Axe, Royal Veterinary College, Camden Town, who on making an examination discovered

the contents of the growth to be of a fœtal nature. He asked whether a mistake had not been made in the sex of the animal, from which so unique and interesting a specimen had been taken.

Being busy at the time, and returning to practice in the Eastern Counties, I could not send the skin to Professor Axe; but in my mind no doubt exists that the animal was a male. It possessed no hermaphroditic characteristics.

It is seldom that twins are produced by the larger domesticated animals, and particularly by the mare and ass, though instances are recorded of these; while in the cow, sheep, and goat, the occurrence of twins, triplets, or even more young creatures at a birth, are not so rare.

The causes of multiparity are not well ascertained. It may be due to simultaneous ripening of two or more Graffian vesicles, which, rupturing at the same time, allow the escape of the ovules they contain, and which may become impregnated at a single coitus; or a "Graffian vesicle" may contain two or more ovules, as Bischoff has witnessed in woman, and these arriving together in the "uterus" may be fecundated at one time.

Or it may even happen that the "vitelline membrane" is the essential part of the egg, and it is evident that when this contains two of these ova they ought, if fecundated, to produce two embryos.

In the first case, as St. Cyr points out, each fœtus has ordinarily all its annexes distinct and completely independent, or it may be that the two chorions are fixed together; in which circumstances the two fœtuses will then have a common envelope.

In the second hypothesis this fusion of the chorion should be the rule, although the envelopes may also be independent; and in the third case—that of the two vitellines contained in the same vitelline membrane—not only the envelopes, but also the fœtuses may become united more or less closely, and thus give rise to double monsters.

Finally, it is possible that two ovules may become detached from the ovarian cluster, though not simultaneously, but successively, and be fecundated one after the other, at two consecutive copulations within a brief period. Occurrences of this kind—by no means rare—have been wrongly adduced as instances of superfœtation.

Speaking of multiplicity in gestation, in which the chorion is common to the two fœtuses, but which are separated by the amnion, there is only one placenta, the two having a circulation in common through their placentæ, and the umbilical vessels communicating by their vascular ramifications. In this case the expulsion of one fœtus necessarily brings about that of the other. This also occurs when both are contained in the same envelopes.

"I believe," says Dr. G. Fleming (page 148 of his valuable work on "Veterinary Obstetrics"), "only two instances are on record of Inclusion: that of the first-mentioned variety, in which one fœtus was found in the abdominal cavity of the other.

"Bartholin, the celebrated anatomist, at the commencement of the seventeenth century, described the case of a mare which brought forth a mule, in the abdomen of which was found another; and Gurlt (*Magazin fur Thierheilkunde*, 1869, page 347), mentions an instance in which one fœtus was developed within the abdominal cavity of a calf, and consisted of an incomplete left hind leg, a membranous organ representing the uterus, and the skin and some vessels. It may be remarked, however, that Rainard witnessed an instance of this abdominal inclusion in a goose. The egg was double the ordinary size, and had another inside, of about the ordinary dimensions; each had a perfectly formed shell.

"The subcutaneous tumours of young animals containing either a whole fœtus or portions of a pre-existing one are common in animals.

"Before the differences of sex arise, both sexual elements (sperm and germ) exist, and are carried in the body of a single individual; though, curiously enough, the congress of the separate individuals in some cases is necessary for fertilization, *e.g.*, in creatures which are not stationary."

Gugenbaur ("Elem. Comp. Anat.," page 54) says, "All those animals which unite in themselves both kinds of productive organs are known as Hermaphrodites. A separation of sexes is apparently foreshadowed in various forms, by the alternating activity of the organs, at the one time the egg-forming, and at another time the sperm-forming organs exercising their function. Hermaphrodism is the precursor of sexual differentiation."

These few remarks are intended to supplement the former general observations relative to abnormal peculiarities of gestation in various domesticated animals.

Likewise we occasionally find, situated in various positions of the animal body, abnormal growths (cysts), containing portions of bone, teeth, hair, etc.—no doubt freaks of nature. I venture to hope that these few remarks may prove of interest to the readers of the VETERINARY JOURNAL; and may also add I should feel pleased if any reader or contributor would, from personal knowledge, speak of any abnormalities they have at any time met with, in any of the domesticated animals, which in any way concerns my paper.

From Dr. G. Fleming's valuable work I have hitherto gained much information, notably in veterinary obstetricity; and without it in many cases even of Fœtal Dystokia, I saw no hope of success in following ordinary methods of procedure.

GENERAL REMARKS ON SKIN DISEASES.*

BY R. W. BURKE, F.R.C.V.S., A.V.D., CORRESPONDING MEMBER OF THE ITALIAN VETERINARY ACADEMY.

(*Continued from Vol.* xxxi., *p.* 411.)

Eczema of the Horse.

The non-parasitic diseases of the skin of the horse are mostly of an eczematous nature. It is an eruptive form of dermatitis in the horse. We reckon under Eczema more or less all the following eruptions, which at first appeared as simple eruptions, but which are truly eczemata.

(*a*) Papulo-vesicular Eczema, summer eruptions, heat eruptions, knots in the skin or tubercular eruptions.

(*b*) Squamous and Chronic Eczema—as in the dog so in the horse, the disease is no different.

(*c*) Chronic, more or less pustular and pruriginous, Eczema of the mane and tail is also one form of Chronic Eczema.

(*d*) In the beginning a moist, afterwards an itchy Eczema is the so-called "filth-mauke;" and also carpal and tarsal eruptions belong to the class Eczema.

(*a*) The Papulo-Vesicular Eczema of the Horse.

Syn.—(Heat-eruptions, summer eruptions, and desquamating eruptions.)

Etiology.—The papulo-vesicular form of Eczema in the horse is chiefly to be noticed on the body. Very rarely, it may be seen generally diffused. More frequently it is seen in parts where the skin is exposed to friction, such as about the head, the sides of the neck, about the shoulders, the wall of the chest, the back, the seat of the saddle, the loins, the croup, the points of the pubis, etc. The disease may be due to constitutional causes, and occurs mostly in young animals with a delicate skin, especially during the season of the year when the coats are falling, which must be considered a predisposing cause of this disease.

Symptoms.—The papulo-vesicular Eczema consists of neither more nor less than a mass of knots in the skin which appear in large numbers and in irregular groups, and can only be discerned by manipulation. The size of the eruptions varies from a poppy-seed to that of a pea. At first they are soft to the feel, but later on become harder and more and more tough. The skin surrounding the knots is of a slightly higher temperature, and appears somewhat swollen. If the skin be put in folds and manipulated,

* Translated from "Lehrbuch der spec. Pathol. u. Therapie der Hausthiere, by Friedberger and Fröhner."

the knots are found to be partly moveable. The hairs on the knots are erect and spread outwardly from the centre. Itching, both in the stage of efflorescence and defervescence, is present; but it is particularly marked in the intermediate stage between these. During the course of this disease, the knots are covered by a serous exudation under the epidermis (*stadium vesiculosum*). Owing to this the knots in the skin become both smaller and harder. It is the exudation which causes the hairs to become erect, with ultimate depilation. After the falling of hair, the skin, if not pigmented, leaves a hairless, small, light-red spot in the place of the eruption; and in pigmented skins, a light-grey spot, with scurf, remains behind. In consequence of the rich exudation, desquamation of the cuticle may be especially marked (Desquamating Eczema). When the inflammatory process is deeply rooted, then, even in darkly-pigmented skins, clear, empty, tender spots are left behind.

Treatment.—This form of Eczema is of a benign nature, and heals spontaneously, when the inflammation has subsided. The hairs also grow on the bald patches. Treatment, therefore, is seldom necessary; but should it be indicated, glycerine or verdigris ointment may be applied on the bald patches, to promote early growth of the hair. It should be rubbed in with tar and the spirits of wine, of each equal parts.

Remarks on the characters of Prurigo *per se* and Pruritus accompanying Eczema.—

Prurigo in mankind is described as a knotty formation, which is a chronic eruption of the skin accompanied by severe itching, and appears chiefly on the extremities, and is peculiar to early youth. It is usually hereditary, and after several years leads to pigmentation and thickening of the skin. On this account, Prurigo is seldom curable. This disease generally escapes observation, because of the mere itching that characterises it. Prurigo in man, as well as in the lower animals, is usually described as an itchy eruption of the skin; but the diseases are not similar, because:

(*a*) The descriptions of Prurigo in the lower animals contradict themselves in many points. Many authors who have written on this subject appear to have copied their views, the one from the other.

(*b*) The form of the disease in the horse, dog, cattle, and sheep does not correspond with the disease seen in man, there being no feature of Prurigo in animals similar to that disease in human beings.

(*c*) The causes of Prurigo in animals described by authors, such as bad feeding, irritation of the digestive organs, food given in a hot state, sudden changes in the method of feeding from poor

stuffs to highly nutritious material, excess of blood in the system, change of hair, etc., are more or less all supposed, but fanciful causes.

(*a*) We have not noted a true Prurigo in animals, most cases described as this disease being neither more nor less than papular Eczema. Prurigo of animals cannot be described under the head of dermatitis.

(2) The Pruritus in man is an itching of the skin without any change in its structure, which appears chiefly on the sides of the extremities, soles of the feet, palm of the hand, on the genitals, round the anus, and is of a neurotic origin. It is doubtful if a true case of Pruritus in the domesticated animals originates in this way.

(*b*) Chronic Squamous Eczema of the Horse.

Syn.—Scaly-Itch, Hunger-Itch, etc.

This disease is described by most authors as the small scaly itch, and is identified with psoriasis and pityriasis of the human subject, which is, however, incorrect. It is clear that all Exanthems may, during some stage of their course, assume a squamous form.

Causes.—The causes of the squamous Eczema are in general the same as in all other exems, principally uncleanliness and careless grooming; also poor feeding, when the disease is known as "hunger-itch."

Symptoms.—The principal symptoms are a small-scabbed desquamation of the cuticle, owing to which the underlying skin becomes thickened and altered in colour and indurated. There is slight Prurigo. The scurf is most abundant on the head, above the eyebrows, inside the ears, on the neck and chest, the shoulders and elbows, on the hips, stump of the tail, under the belly, at the bend of the knees and fetlock joints.

Course.—Is a chronic disease, lasting months and even years. It often heals spontaneously.

Treatment.—Careful grooming, and removal of the scurf. Tar ointment as a rule removes the inflammatory action very quickly, and healing readily follows.

The identity between it and psoriasis and pityriasis is not correct. The psoriasis is an infiltration of the papillæ, the epidermis being of a horny character showing red pimples (*Psoriasis punctata*), which after a time enlarges to the size of a half-crown piece (*P. nummularis*), and may enlarge again by confluence, retaining the original circular shapes (*P. annularis et gyrata*). The sides, the elbow and knee joints, the scalp, the forehead, and the ears are the seats of this disease.

(*To be continued.*)

BONE-SUCKING IN CATTLE.

CATTLE in some respects differ widely from other animals in their tastes, and very few species are more erratic in their appetite. The extraordinary things cattle will voluntarily swallow—articles which can yield absolutely nothing in the way of nutriment—stones, glass, pieces of iron, wood, leather, etc., is a matter of almost daily experience; but the habit of "bone-sucking" or "bone-chewing" is one which, we think, has not been observed among them in this country, though it may exist. At any rate, it has been observed on the African and American continents; and as cattle in their habits are probably less changeable than any other of the domesticated creatures, we might expect to find this peculiar fancy of theirs widely prevalent.

The habit of bone-sucking has been particularly noticed in Natal, South Africa, and in one of the Southern Atlantic States of America.

With regard to Natal, the late Archbishop Whately some years ago made a most interesting communication to the Dublin Natural History Society, on the habit of bone-sucking among cattle in that colony, and stated that animals addicted to it fell into an unhealthy condition unless bones were removed beyond their reach. He considered it only a bad habit.

More recently, Mr. Donovan wrote to *Nature* as follows:—

"In the colony of Natal the cattle have an extraordinary liking for bones. They will stand for hours with a bone in the mouth, quietly munching, sucking, or perhaps more correctly speaking, 'levigating' the bone with the tongue. I have not heard that cattle have the same habit in the other colonies of South Africa, but I have been told that cattle exhibit the same taste in some parts of South Australia. In Natal there is, I believe, a scarcity of chalk and limestone in the geological formation. . . . I may mention that horses and other herbivorous animals in Natal do not exhibit the same taste."

With regard to the American continent, Mr. J. Le Comte, of California, in a communication to the *Southern Medical and Surgical Journal*, says:—

"In confirmation of the importance of inorganic principles in the food, I will here adduce a remarkable fact which has repeatedly fallen under my own observation. The cows which live on the extensive savannas and pine-barrens lying on the north side of the Altamaba River, in McIntosh County, Georgia, subsist upon very coarse species of grasses, which are probably deficient in some of the phosphatic or calcareous ingredients essential to healthy nutri-

tion, for these animals are constantly observed to *chew bones.* They frequently remain stationary for hours, with the head elevated to prevent the saliva from escaping from the mouth; they will, by constant trituration, gradually reduce the bony mass to a very small size, when it is rejected as an unmanageable morsel. The cattle in this section of the State are usually rather lean, and cows brought from the fertile plantations in the neighbourhood, if allowed to subsist on what they can procure in the savannas and pine-barrens, in the course of a year or two become equally thin, and ultimately fall into the habit of *eating bones.* I have not been able to ascertain whether these animals indulge in this habit to a *greater extent* when they are in a state of *pregnancy*, and when they are giving *milk;* but it appears reasonable that the increased demand for mineral matters under such conditions of the economy would call for a proportionate supply. The intelligent instinct which prompts these animals to seek for a diet so extraordinary must originate in an inadequate supply, in their impoverished aliment, of some of the inorganic principles (probably the phosphatic salts) essential to a proper nourishment of the osseous structures."

It would be interesting to learn whether, and to what extent, this habit of "bone-sucking" or "bone-chewing" is prevalent in this country, or in our other colonies besides Natal; and whether it is merely a depraved habit akin to that which causes bovines to ingest almost anything material which they can conveniently swallow, or is a prompting of nature to supply salts which may be deficient in the food upon which they are compelled to subsist.

Editorial.

THE NEW ERA IN MEDICINE.

It has been obvious for many years that, under the influence of increasing knowledge in physiology and pathology, medicine is assuming a new phase, and that great changes are taking place in the views entertained with regard to the origin of diseases, pathological processes, and therapeutical requirements. To prevent or to cure a disease by modifying the virus of that or another disease, and introducing it into the body of the creature to be protected or cured, is one of the phases of modern medicine which is now attracting most attention, and which appears to offer the most important results.

It had its commencement when inoculation began to be practised for human Small-pox, and gained a big step when Jenner introduced vaccination. But it may be asserted that Pasteur is the father of modern protective medicine, as his brilliant discoveries with regard to Fowl Cholera, Anthrax, and Hydrophobia inaugurated a new era in medical science, in the demonstrations he abundantly afforded of the possibility of compelling the bane to provide its own antidote. Toussaint, Chauveau, and other members of the veterinary profession, working in the same direction, have afforded ample confirmation of this possibility, and now the field is occupied by many enthusiasts eagerly striving to perfect what has already been discovered, or to make fresh conquests over other diseases. It is needless to point out that this new movement has been dependent for its origin on the assumption—largely proven—that all transmissible maladies are due to micro-organisms, and that either these or their products are the agents to employ in preventing these maladies. The isolation of these organisms, and their ready artificial cultivation, afford the most certain means of utilising them, as they become more immediately controllable, and amenable to observation and experiment.

Already the germs of a number of communicable diseases have been detected and utilised in this way; and a few months ago we published a most interesting and important paper by Dr. Schweinitz, on the ptomaines formed by the Hog-Cholera germ—sucholotoxin and sucholoalbumin, which promise such good results in dealing with that most destructive disorder.

But the greatest, and indeed the most extraordinary excitement, has attended the alleged discovery by Koch of a cure for Tuberculosis, by means of the germ-product of that scourge. The intense and unparalleled anxiety—so far as medical discoveries are concerned—to learn all about this cure, is now subsiding, as results of treatment are being published; and it is becoming evident that some time must elapse before the real value of Koch's fluid can be estimated. It is greatly

to be feared that it will not accomplish all that was claimed for it; but that it will be in some way beneficial there is no reason to doubt, and it certainly marks another step forward in the advance of medicine. How far it may be of use in the Tuberculosis of animals, it is as yet impossible even to guess; but it is to be apprehended that it will be much more limited than in dealing with mankind.

Even in the matter of diagnosis, though the fluid may prove of value in its application to human Tuberculosis in its various forms, yet it is very questionable if it will be found of much service in animals so affected, and it may be that the disease will be more readily, easily, and certainly diagnosed by other means. Microscopical examination of the tracheal mucus, as recommended by Bagge and Nocard, and milk or other products of tuberculous animals, is likely to be at least as certain and convenient as inoculation with Koch's fluid. This is, at any rate, the impression made after perusing the multitudinous reports from all quarters as to the results obtained in mankind, and that from the Dorpat Veterinary School, published below.

But, as has been already stated, it is premature to arrive at a definite conclusion on the subject at present, and it will require some more months of careful observation before the evidence can be sufficiently advanced to establish a sound opinion. The new direction medicine has taken is full of promise, and we must wait and watch for the signs that indicate its progress.

KOCH'S TREATMENT: EXPERIMENTS ON CATTLE.

In the *Munchener med. Wochenschrift* for January 13th, 1891, Professor Bollinger, of Munich, gives a summary of some experiments with Koch's fluid, made in the Veterinary Institute at Dorpat by Prof. Gutmann on three tuberculous cows. The disease was diagnosed partly by physical examination, partly by the presence of tubercle bacilli in the bronchial mucus and in the milk, and partly by changes in the lymphatic glands. Relatively large doses were employed, 0·1 g. being injected into one animal, 0·2 g. into a second, and 0·3 g. into a third. The injections were made behind the shoulder-blade. The temperature was taken every hour on the day of the injection and the following day and night. In all three animals the temperature began to rise about eleven hours after the injection. The reaction corresponded to the amount of the remedy exhibited, the maximum attained in the first animal being 40° C., in the second 40·8°, and in the third 41·7°. The duration of the fever in the three cases was four, nine, and ten hours respectively. In the first cow another injection of 0·3 g. was given four days after the first; reaction came on in from eleven to twelve hours and lasted four hours. In all three animals during the febrile period, there was some difficulty of breathing and loss of appetite, but the next day they took their food well, and rumination was active as usual. No rise of temperature followed the injection of 0·3 g. in two healthy bulls which were used as "control" subjects. Twenty-four hours after the injection they were slaughtered, and all the organs were found to be perfectly normal. Gutmann, therefore, concludes that Koch's remedy is a most valuable aid to diagnosis in the case of cattle suspected of tubercle. In this view Professor Bollinger agrees with him.

NOTES FROM NATURE—MAN'S INTERFERENCES—NATURE'S FORBEARANCES.*

BY THOS. B. GOODALL, M.R.C.V.S., CHRISTCHURCH.

I TAKE it for granted that my audience to-night is composed only of gentlemen having an interest in some branch of natural science. One is always placed at a disadvantage when he does not know, and is unknown by, those he is addressing. Those of you who are well advanced in the study, I must beg to excuse the simplicity of the paper, and I should wish to tell you at the outset that it will be my endeavour more to elicit discussion than to elaborate details.

To those of you who are just commencing to take an interest in these studies, I hope to just say sufficient to whet your appetites to search deeper into these hidden things.

It will be my endeavour to-night to direct your attention to a branch of study that has not received the attention it deserves at the hands of scientists, but which must be of the most profound importance from a hygienic standpoint. I do not anticipate that I shall be able to show you anything new, but I *do* hope to say sufficient to arouse your interest in the study of the life-history of those insects, etc., which in some stage of their existence, conserve the health of the higher forms of life, by removing from the face of the earth, and returning to the elements, the products of decaying organic matter.

The first thought that strikes the devout student of any of the myriad forms of life that go to make up the great economy of nature, is, how beautifully and rhythmically every thing works until man intervenes! Man appears to be the one form of life that is for ever endeavouring to thwart the designs of the Creator.

Whether we regard the question in the light of his producing and breeding, artificially, animals for his own consumption—where, by his artificial selection, he is for ever over-riding the great natural law of the "survival of the fittest," and in our over-fed and *immaturely* bred cattle and stock generally, he is perpetuating a race or races of animals that, from Nature's point of view, are *diseased*, and therefore looked upon by her as an incumbrance, or monstrosity which Nature abhors and will not tolerate; or whether we regard man from the light of his inherent propensity to destroy, out of pure wantonness, anything that has life—as witnessed by an infant killing flies, the child chasing and destroying butterflies, the schoolboy unable to resist the natural impulse of killing a bird or a mouse, the young man who must shoot or kill anything for sport; or the older ones, who have every other form of life destroyed that would rob them of the *pleasure* of *killing* game specially raised for the purpose—from every standpoint man stands out as the enemy in the economy of Nature.

In spite of all this Nature acts kindly to man, and she is in many unthought-of ways for ever rectifying his mistakes and blunders. From Nature's point of view the mode of existence of civilised man must be regarded as an artificial one, and this brings him into direct antagonism on all sides with the forces of Nature.

Man was made to have dominion over the works of the Creator's hands; and, although, in his wisdom, he is prone to ignore the source of his power, he is, in spite of himself, obeying this old injunction, and bringing Nature's forces under his sway. He is only able to maintain this dominion or kingship by ever constant watchfulness; for all the forces are antagonistic to his sway.

He stores up, in different ways, quantities of light taken from the sun, and

* Read before the Bournemouth Natural Science Society, on November 12th, 1890.

reserved for his use when the sun's rays are absent. The crudest forms of this were the old torches, then the tallow candles; but now, with gas and electricity, we can store away light in any quantity. But then these stores require great watchfulness, or the very fact of such a force being confined or packed together in a small space is fraught with danger to man.

So, again, the forces that man is able to generate by heat and electricity, and bring under his own sway—unless great care and oversight are brought into play, we have explosions, etc., and the greatest catastrophes, as by a spark of light coming into contact with the enormous *force* stored away in a quantity of gunpowder.

Then our chemists are, by combining the elements of Nature in different proportions, bringing always under the sway of man different forms of matter which are of the greatest service to him in the arts and sciences; but these need the greatest care and discrimination in their use.

And, lastly, there is the great force of *life*.

By the natural laws, no matter that has ever formed part of a living organism is allowed to remain in a state of quiescence. In Nature there can be no rest; there is an everlasting, unceasing cycle of change in *all* matter, and the force of life accelerates these changes. When any matter that has formed part of a living organism is, after being separated from the *life* of that organism, exposed to the air or covered with a thin layer of earth or water, it is immediately attacked by the minutest organisms, Bacteria, which induce what we term putrefaction. These microbes are easily demonstrable with the microscope. This process of putrefaction restores the matter to the elements from which it originated, and there again it enters into a fresh cycle of life—there is no such thing as *rest*; this is not known in Nature's laws.

On the outer edge of this cycle, in the borderland between the living and the dead, the devout student is brought face to face with the mighty forces of life in the lowest forms of living organisms and in the insect world; and it is this mighty host with which man has to wage perpetual warfare in order to maintain his sway, or, indeed, to live at all in the artificial sphere in which he has elected to place himself.

He must *arrest* the decay, or, in other words, the process of restoring to the elements. The wool of the sheep he cleans and purifies, and converts it into various articles of clothing; he has found it to be a non-conductor of heat, and it retains the warmth of the body, but let him neglect to take care of the fabric, and the little Tineidæ are ready at very little notice to attack and to perform their function. He dresses and prepares the skins of animals for the protection of his feet and other purposes. Let the leather be laid on one side for a time and see how soon Acarides in hides or the fungus Aspergilius glaucus in leather, commence their operations. Even the woodwork of our fences and dwellings requires perpetual care, and even then we find it almost impossible to preserve it for any length of time against the determined attacks of the Rhyncophora or wood-boring Beetles.

I have no doubt that most of us here, interested as we are in natural science, have attempted at times to *preserve* parts of the structures of what has once formed part of a living organism—it may be bones, or muscles, or skins, or feathers; or whole beings, as butterflies and moths, beetles, etc., and have we not all experienced that without constant vigilance they will sooner or later be attacked by Acaridæ? How these minute creatures find their way into our museums, and studies, and cupboards, and boxes is an interesting problem to solve, and only tends to prove the intensity of the struggle between man and Nature. We call this class of creatures *injurious insects*, because it is their function to thwart us in our interferences with Nature's laws; though, from *their* view of the case, man must be regarded as the most injurious creature in Creation!

But the most important phase of this incessant struggle is when man interferes with the work of Nature's purifiers or scavengers, then it is that he must use *all* his energies to keep in subjection an array of forces that, with the least relaxation of vigilance, spring upon him and upon his cattle and herds, and induce the state we are accustomed to term "disease."

All forms of life are dependable one upon the other for their existence, and, in Nature, a superabundance of any particular form is kept in check by other forms. Thus the thousands of acorns that are produced from one oak tree have the life that is in each destroyed in the process of alimentation, by the many birds and beasts which devour them; keep these animals from the acorns, and there would soon be such an excess of oak trees that the earth would not be able to maintain, in equilibrium, other forms of life. As these animals keep in check a superabundance of oak trees, so there are many small birds which prey on the larvæ of lepidopterous and other insects; but here man interferes and destroys the birds, and in consequence these insects appear occasionally in such numbers as quite to strip the trees of their foliage.

This law of equilibrium of life must remain constant in every phase of Nature, and is only violated by the interference of man.

This being so, the microbes which disintegrate organic matter must have their numbers kept in check by some other forms of life, or they will be produced in such prodigious numbers as to destroy Nature's equilibrium, and then they induce disease.

From a few very crude and imperfect experiments, and which I have great pleasure in submitting to your notice, I am led to believe that many forms of insects and crustaceans are the normal agents for sustaining the balance of life here—and this is a branch of study that deserves more attention, because in the near future it will be the ascertainment of the knowledge of those forms of life, that in Nature destroy or keep in check the microbes inducing disease that will form the basis of treatment in this class of diseases.

Our text-books on entomology are not sufficiently explicit in looking out the life-history of some of the Diptera; for example, we just get the intimation that "the larvæ" are found on dung, or on decomposing animal or vegetable matter, or on rotten wood, etc., etc. Whereas, it would be more correct to say, that these comparatively higher organisms live on the smaller creatures which induce putrefaction or decay; and it is man who is to blame for his interference when these minutest organisms are propogated in numbers in excess of Nature's limit.

In the very elaborate sewerage of our large towns the organic matter in the sewers is practically excluded from the air, but the Bacteria are found in great numbers; these gain access from the inlets; but their enemies, so to speak, the many Coleoptera, and the larvæ of many of the Diptera, are penned away from them, and there is nothing, therefore, to keep them in check, they are consequently produced in such prodigious numbers, that given the slightest opportunity to escape, they attack any organic matter with which they come in contact. This is usually the mucous membrane of the throat, or of the bowels, or the lungs, and if from any cause, such as debility, over exertion, or excess, the organism so attacked has the vital functions lowered, and not in a state to offer resistance, they induce disease.

The same thing occurs when they gain access to drinking water; it is not the decomposing organic matter that causes disease, but the microbes that cause the decomposition, and hence, when certain insects are found in or about water, we may know that it is unfit for consumption, not because of the insects, but because we know that these insects would not be there unless the water contained the smaller organisms on which they live, and which cause disease by being taken into the animal economy.

In the sewerage of towns, having broken, as it were, the cycle of life, by debarring insects from preying on the smaller organisms, our remedy is the employment of such agents as will accomplish the same object, and this must be done by a plentiful use of those preparations we call "disinfectants." If this is neglected, if man eases his vigilance, he must suffer for his carelessness.

By your indulgence I will now submit to your notice one or two of these scavengers of Nature, with a short sketch of peculiarities in their life-history, and hope this may be the inducement to some here to take up a line of research which is full of interest, and the ultimate outcome of which may be of the highest importance to mankind. The interest is much enhanced, and the satisfaction is far greater, when we make a discovery, however trifling, by our own observations.

One day this summer I was wondering how a number of black bodies could have been deposited on the surface of some stagnant water in a tub; these bodies had much the appearance of a number of "smuts" from a chimney, only that they were of a uniform shape. I took one of these masses and examined it with a pocket-lens, and found it to be composed of a number of tubes lying closely side by side.

I then placed a small portion under a low power of the microscope, and thought I had found a "Ray" fungus, for the appearance was much like the disc of a daisy. Determined to find out for myself what this was, I took another of the masses from the surface of the water, and placed it in a vial of water, and watched—and the result was gratifying and beautiful beyond description. After a couple of hours the ends of these tubes, that rested on the water, opened, after the manner of the operculæ of mosses, and swarm of minute larvæ of the Culex pipiens emerged; this then was a mass oft the eggs of the common gnat!! Then I went to my book of reference, and found that this was the way in which the ovæ were deposited; but the book did *not* tell me how the larvæ made their exit from the eggs. Then I was puzzled to account for the appearance of the "Ray" fungus; and this, on closer examination, I found to be the *lid* of the ova, which opened on to the water.

It is scarcely necessary for me to follow the life-history of this most interesting creature further, it is so well known. Perhaps I ought to notice that both in the larva and pupa stage it is very active.

But my object to-night is to point out that this insect, the Pulex, only deposits its ovæ on *stagnant* water, and if the water is loaded with the products of putrefaction, the number of eggs deposited is far greater than on comparatively *clean* water. In the tub from which I made these observations I had some bones macerating, and it was therefore a splendid pabulum for the scavengers.

Most of you have seen and noticed what is vulgarly styled the "blood-worm," in stagnant water; this is the larva of another gnat, the Chironomus plumosus. This insect's manner of depositing the eggs is even more interesting than that of the Culex, and in my reference books I can find no allusion made to this.

By the side of the tub, on the edge of the water, were several elongated flesh-coloured, gelatinous substances, having much the appearance of transparent annelids; the pointed ends were quite firmly adherent to the side of the tub, just above the water level, and the substance itself being just *in* the water. I was greatly puzzled for some time to know what these were. I placed some of them in vials, and watched them without, at first, any satisfactory result.

Then, thinking they might have been injured in manipulation, I bethought me to scrape off the portion of wood to which they were adherent, and so remove them undisturbed to the vials, and then, after an hour's sunshine, the

mass was alive with minute creatures which I recognised as small "blood-worms." I have kept some of these through their changes, and have here one of the perfect insects, which died only yesterday, having then deposited its eggs again.

This gnat, then, deposits its eggs in a vermiform glutinous mass on the edge of stagnant water. The larvæ are not nearly so active as those of the Culex, neither is it necessary for them to come to the surface for respiration—they have a curious fashion of making for themselves a kind of cocoon of their own excrement and other matters, in which they are almost hidden from view. These again are scavengers.

Another interesting little creature that propagates its kind with amazing rapidity, I have proved is able to clarify, and therefore purify, water that was before turbid with filth, is the little Daphnia pulex, or water-flea. This is interesting as being one of the Crustaceans that does not undergo metamorphoses in its life-history.

Here, again, I have a few specimens of Poduridæ, wingless insects found on the surface of stagnant rain water, and commonly known as spring-tails. I am afraid these must be cannibals, because I placed twenty-four in this bottle, and now there are but four or five, and they have had no opportunity of escaping. One of them has been alive for at least *ten* days at the bottom of the water; with the pocket lens I find that the water has also in it numbers of much smaller creatures. These must be looked upon as scavengers, because they are never found in clean water.

Then the Cristalis tenax. How can we estimate the value of this insect? Its larvæ revel in the greatest filth of cess-pits, drains, etc., etc., and is known as the rat-tailed maggot. The mouth of this larva is so constructed as to make it impossible for it to live on the solid matters it is credited with consuming, and therefore we must conclude that it preys on the minute creatures which break up the solid organic matters.

This summer I was able to point to an escape in a drain-pipe, by noticing a number of these breeze flies hovering round a particular spot. They were striving to get access to decomposing organic matter from which they had been excluded by man! Their instinct led them to perform their function in the cycle of life; man's intelligence interfered!

Even the larva of the common flea is useful. When man is so negligent as to allow his dwelling to become filthy, the flea deposits its ovæ in the refuse, and the larvæ thrive in the small atoms of organic matter.

Time will not permit me to enter into a description and mode of life of some of the Coleoptera, but how invaluable and useful are some of the Scarabœidæ in Nature! In the summer time I have seen a horse's excrement almost buried in one night by these creatures. If left alone, how do they purify and cleanse the face of the earth, and at the same time fertilise the soil!

One other class of creatures I must just mention, and that is the wonderful Acaridæ. How *are* these carried about? and how *do* they gain access to the most unapproachable places? As they are often found to vary much in size in one community. I sometimes think their mode of transportation and propagation may be similar to the Aphides, *i.e.*, that a perfect female deposits her eggs in a suitable pabulum, and that the larvæ from these eggs can reproduce their kind without attaining maturity. This is only a surmise; but that these creatures are some of the most useful of Nature's scavengers cannot be gainsaid. They are to be found always and everywhere in the last stages of the breaking up of organic matters. I have found them in the cocoons of the chrysalis cases of the goat moth; in the dry skins of moles and rats, when every other part has been restored to the elements; in the bones of a cat that had been buried for seven months three or four feet

under the ground; in bones that have been dried and well prepared, after years in a museum, and, in fact, wherever organic matter has been arrested in the process of being returned to perform its *role* in the cycle of life.

Gentlemen, I beg to thank you for your indulgence. I can scarcely designate this a scientific paper; it has simply been an endeavour to give utterance and shape to thoughts which have been impressed on my mind, in my gleanings after the hidden things. My object is first to raise discussion and then I hope to stimulate some younger members to search deeper and deeper into the subject on which I have but barely touched.

I will conclude with a few lines from Pope:—

> "See, through this air, this ocean, and this earth,
> All matter quick, and bursting into birth.
> Above, how high progressive life may go!
> Around, how wide! how deep extend below!
> Vast chain of being! which from God began,
> Nature's ethereal, human, angel, man,
> Beast, bird, fish, insect, what no eye can see,
> No glass can reach; from infinite to Thee,
> From Thee to nothing."

CONTAGIOUS PLEURO-PNEUMONIA AMONG GOATS IN INDIA.

THE following interesting communication appears in the *Quarterly Journal of Veterinary Science in India* for October, 1890, as an Appendix to an Agricultural Report of the Bombay Presidency.

A disease new to India, in as far as the scientific recognition goes, and known as Epizootic Pneumonia or Pleuro-Pneumonia of goats, prevailed among the goats on and about the Bhadgaon farm and was recognised as Pneumonia by the Superintendent of the Farm, Mr. Mehta, M.R.A.C. It is supposed that the disease was brought by some of the goats purchased at markets in different parts in Khandesh. The animals were subjected to a treatment consisting of administration of ammonia and ether internally and application of stimulants to the chest externally, but it was ineffectual. The disease commenced about the 17th April on the farm and disappeared about 23rd May, and fourteen animals succumbed to it. This disease (which is locally known distinctively as "rog" or *the* disease, and with which the local butchers and shepherds are familiar) was ascertained as causing considerable ravages among the sheep and goat flocks of the Dongras, who traverse the country with sometimes several thousand sheep, forming flocks which are hired by agriculturists to manure their fields. Though there were no cases among the sheep at Bhadgaon, it is evident that this disease is prevalent and wide-spread among the adult goats and sheep of both sexes, and sometimes calves are said to be affected by it, but not kids. It is quite independent of season, and its spread is due to contagion only. Mr. Steel says, "That the disease is Pleuro-pneumonia is sufficiently evident from the *post-mortem* examination, and that it is specific is evident from one side of the chest only being affected, from the disordered condition of the blood, and from the *post-mortem* lesions in general. Whether it is the same disease as specific Pleuro-pneumonia of cattle, or whether it is merely a close ally of that disorder, remains to be seen. I think the latter view more probably correct, as we have no evidence of adult cattle on the farm taking the disease, which would be the case probably were it communicable to them. The symptoms and *post-mortem* appearances are very similar to those of "pleuro" in cattle. . . . It is said that four or five thousand sheep and goats belonging to one owner

have, in one season, been carried off by the disease, and in this way several wealthy men have been ruined. Thus it is evident that a disease among goats is prevalent, widespread, and requires serious consideration as being a source of much loss to the community. . . . I did not see any cases among sheep, but there seems ample evidence that it affects them as well as goats."

(*a*) When the disease is in its acute phase :—

Symptoms :—(1) Acute fever with a temperature of 106·2° or so ; (2) cough and slight nasal discharge ; (3) pale mouth ; (4) pink or bronze conjunctiva ; (5) dry nose and anus : (6) bright eyes and glossy coat ; (7) modified lung sounds ; and (8) quick pulse and breathing.

Post-mortem Appearances :—Autopsy, immediately after death, showed the carcass in excellent condition. (1) Spleen nodular ; (2) liver congested somewhat ; (3) one lung affected and weighed heavier than the unaffected one ; (4) the liver showed small local patches of hepatitis ; (5) the blood normal ; (6) no fluid in the chest, but slight local pleuritis, also a little sub-endocardial extravasation ; (7) the trachea was markedly congested and the bronchi also, their passages being filled with froth and phlegm ; (8) the left lung was consolidated, especially in its posterior division, its surface being of a greenish colour and presenting a number of blood spots varying in size and colour.

(*b*) When the disease assumes the sub-acute phase :—

Symptoms :—(1) General sluggishness ; (2) paroxysmal cough ; (3) discharge from nostrils ; (4) extreme emaciation ; (5) coat glossy and the eyes bright and glistening ; (6) mouth pale ; (7) pulse 80, evening temperature 104°·2, morning temperature 103°·8 ; (8) conjunctiva somewhat bronze-coloured ; (9) anus dry and hot ; (10) lung sounds lost on one side, and pressure on the intercostal spaces seemed to pain the animal.

Post-mortem Appearances :—Autopsy, immediately after death, showed abdominal organs healthy, with the exception of the spleen, which was rather firm in consistency. Liver somewhat pale. Pleural cavity of the diseased side of the chest was obliterated by adhesions, except at the extreme infero-posterior part, where was accumulated an amount of clear serous fluid which distended the remainder of the cavity, and coagulated (like size) into a greenish opalescent mass after removal from the body. The endocardium of the left side was congested, one lung healthy, the other consolidated, except at the extreme anterior part, of a greenish metallic colour on the surface, quite useless for all practical purposes, exhibiting from before backwards the following characteristic appearances : (*a*) Congestion ; (*b*) thickening of the pleura and of the parenchyma, also nodules, probably due to accumulation of pus in the air cells ; (*c*) this condition exaggerated ; (*d*) grey hepatization or nodules in a state of suppuration ; (*e*) the parenchyma undergoing cartilage-like thickening, and encroaching on the hepatized portion ; until (*f*) the whole tissue becomes a cartilage-like mass.

Treatment :—No curative measures were successful. Mr. Steel proposes the following preventive or repressive measures :—

(1) Elevation of the internal temperature, as detectable by the thermometer, is apparently absolutely the earliest symptom ; but for practical purposes it is sufficient if the shepherd be given orders to at once isolate and report any animal which coughs, discharges from the nose, has discoloured eye membranes, seems unable to keep up with the rest of the flock, or goes off its feed.

(2) The best treatment practicable at the Bhadgaon Farm :—

(*a*) Close supervision with a view to early detection of cases ; (*b*) prompt isolation of sick and suspects ; (*c*) segregation, for at least fourteen days, of all freshly purchased animals ; (*d*) thorough disinfection of any sheds occupied

by the herd, or penning them at night in the open air, with frequent change of site of the pen; (*e*) continuations of the system of prompt slaughter and sale of animals directly they are found to be diseased; for such evidence as is to hand tends to the view that no ill consequences to mankind are liable to result from the ingestion of the flesh of animals suffering from this disorder.

Mr. Steel made the following remarks on the present summary, when it was sent to him in accordance with Government orders:—

"It is probable that diminished prevalence of communicable animal diseases during the year under consideration has been brought about only to a very limited degree by Government measures taken hitherto, though diffusion of information by means of the 'Cattle Disease Primer' widely distributed and the 'Instructions concerning Communicable Diseases of Horned Cattle' has, doubtless, had some effect. Apparently the curve of disease prevalence is now at a low point only in the course of one of those natural cycles in which experience has shown that disease occurs. Thus we may anticipate that the present lull will be followed by heavy losses in the course of a year or two, and Government and private efforts to provide safeguards against cattle-disease ought not to be relaxed. Other parts of India, such as Burma, Bengal, and the Punjab have suffered severely this year.

"Prevalence of cattle-disease in Native States is a serious matter, tending to undo the results of efforts made in British territory, in consequence of the States acting as foci from which disease may radiate over the frontier. A leading feature in the policy of disease repression in India, therefore, is to endeavour to secure as effectual veterinary inspection in the Native States as in the British territory."

NOTE ON THE COMPOSITION OF THE SWEAT OF THE HORSE.*

BY FRED SMITH, M.R.C.V.S., F.I.C., PROFESSOR, ARMY VETERINARY SCHOOL, ALDERSHOT.

I HAVE been led to examine the sweat of the horse for two reasons, firstly, because we know but little about it, and secondly, in order to see whether a knowledge of its composition would throw any light upon a matter of practical observation, that where sweating from any cause unduly occurs it is certain to be accompanied by waste of muscle and general loss of tone and debility, and that these symptoms are only removed or remedied by measures which control the loss by the skin. It is evident that this loss of muscle and enfeebled state of health cannot be produced by simply a loss of water and salts, there must be something else to account for it.

A ready explanation can be found, for we now know that the sweat of the horse is peculiar in containing, under perfectly natural conditions, proteid bodies. Hence the muscle waste and debility produced by excessive sweating must to a great extent be due to the excretion of albuminous matters by the skin.

We have known for some time that the sudoriferous glands of the horse's skin do not respond to the action of certain drugs which in man produce excessive secretion; we have no sudorific agents in Veterinary practice, even pilocarpin in small, medium, or large doses has not the slightest effect upon the skin; the nerves which control the secretion are only affected by muscular exertion, by heavy clothing, or by some intense impression on the nervous

* From the *Journal of Physiology*, No. 6, 1890.

system as in Tetanus, acute pain from any cause particularly intestinal, fear, or the rupture of some important viscus, as the stomach or intestines.

The sweating of horses is peculiar, inasmuch as it is likely even on the removal of the stimulus to occur again. For example, it is very common when an animal has returned from work for it to sweat for some hours after, in spite of the fact that the body has been thoroughly dried in the meantime; and this breaking out into a sweat may occur as many as three times in as many hours, though during the whole of this period the horse has been standing perfectly quiet. I cannot explain this phenomenon.

Lastly, embolism of the large arterial trunks of the hind limbs, a disease not uncommon in horses, is associated with the most intense pain and lameness during work and profuse sweating; but the latter is generally limited to that part of the body anterior to the plugged vessels, so that sweat may be pouring off the general surface of the body, whilst the hind limbs and quarters are cold and dry.

The presence of proteids in the sweat of the horse appears to have been first described by A. Leclerc* ; in ignorance of his paper I shortly afterwards published some observations on the Chemistry of the Horse's Sweat† in which I drew particular attention to this remarkable fact, and I determined when a favourable opportunity arose to make a more extended enquiry into the matter.

The only difficulty in the way is that of obtaining sufficient material to work with; what I have described as sweat is the fluid obtained by scraping the body of a sweating horse; it is therefore a mixture of sudoriferous and sebaceous secretions, and I know of no practical method of separating them.

The fluid removed in this way is opaque and very dirty, but by passing it through several filter papers it is obtained perfectly transparent and of a reddish yellow colour.

I recently obtained 400 or 500 c.c. of sweat, and have been enabled to repeat some of my former observations and to add to them.

The reaction of the fluid is always strongly alkaline, some of the alkalinity is dispelled by boiling. The specific gravity of the specimen under consideration was 1020, and it gave the following composition:—

Water	94·3776		
Organic matter ..	·5288	Serum albumin	·1049
		Serum globulin	·3273
		Fat	·0020
Ash	5·0936	Chlorine	·3300
		Lime	·0940
		Magnesia	·2195
		Phosphoric acid	traces
		Sulphuric acid	traces
		Soda	·8265
		Potash	1·2135

It is quite certain that the proteids of sweat are serum-albumin and globulin. Peptones and albumoses are absent.

Leclerc does not appear to have determined the nature of the albumin found by him, and I am puzzled to know how he calculated the daily elimination by the skin, for work as skilfully as you may much loss occurs while collecting the fluid, and much is left behind in the hair which cannot be removed; moreover, heavy sweating occurs on certain parts of the body, as

* Compt. Rend., 107, pp. 123—126.
† Veterinary Journal, vol. xxviii., No. 14.

between the thighs and in the groins, which are not accessible or only with extreme risk and difficulty.

There can be no doubt that the amount of albumin secreted will vary, depending upon the "condition" of the horse.

I found in a horse in very bad condition through a long illness, that the serum albumin in the sweat was 1·5571 per cent. and the globulin ·1436 per cent.; a few days later, the animal having been at regular exercise, the serum albumin was 1·467 per cent., and the globulin ·058 per cent. The composition of this sweat was as follows:

Water	93·3875		
Organic matter ..	2·7000	Serum albumin	1·467
		Serum globulin	·058
Salts	3·9125	Soda	·7476
		Potash	·5934

I think it possible that after this horse had improved in condition we should have observed a decrease in the output of proteids. I regret that I had not an opportunity of following the case out.

By the process of heat coagulation, in an acid solution, I found the serum albumin to coagulate at 77° and 86°, the globulin at 53° and 70°. It certainly appeared to me that we had two albumins and two globulins, though I confess to some difficulty in determining when the process of coagulation at any temperature is at an end.

I made a careful examination for urea by Haycraft's process, viz., dialysing the sweat into alcohol. The actual determination was made with sodium hypobromite, and though I got a trifling quantity of gas I cannot say that it was from urea.*

I examined for sugar but found none.

The fat was extracted in an ordinary fat apparatus. I was surprised to find in the bottle on evaporating the ether a heavy crystalline deposit. This was instantaneously soluble in water, and deposited again on evaporation; it was also soluble in glycerine and in alcohol, but completely insoluble in chloroform. The solution in water was strongly acid, the crystals liquefied when heated on platinum foil and entirely volatilized; microscopically they were observed to be composed of large and small needles, many in bunches or arranged in stellate groups. The amount of this acid found was considerable, but I regret that through an accident neither this nor its nature could be further determined.†

* I have recently tested for urea in some sweat obtained from a case of acute colic. I obtained no satisfactory microscopical evidence in the alcoholic extract, but this latter yielded by the hypobromite method 4·637 c.c. of gas; the amount of sweat was 15·5236 gms.

† Since this was written I have been able to repeat this observation with the sweat removed from the case of colic. The fluid was dried and extracted with petroleum ether which practically removed nothing from it; ordinary ether was next used and a fairly heavy yellow crystalline deposit was left in the bottle. By an accident in drying the temperature was allowed to rise to 115° C. and the upper part of the bottle was now found to be covered with groups of glistening needle-like crystals about one quarter of an inch long, there were three or four to a group, which latter was cone-shaped, the apex being where they were adherent to the vessel. The crystals were insoluble in chloroform but soluble in water; by this means they were removed from the bottle and the fluid evaporated. There was nothing distinctive in the crystals left, which were now yellowish and like sugar in appearance; they melted when heated on platinum foil and after blackening volatilized; they were faintly acid, gave no reaction with ferric chloride, were soluble in hydrochloric and sulphuric acids and ammonia and partly soluble in nitric acid, soluble with difficulty in alcohol. It is quite certain they were not benzoic; and the microscopical characters, which were very indefinite, did not agree with this acid. The nature of the crystals is still doubtful, I cannot yet satisfy myself that they are those of succinic acid.

I cannot understand why the fat is so small. I thought that a considerable quantity was secreted by the skin, its function being protective. The sebaceous glands in the skin are large and numerous, and there is something which gives the coat of a well-groomed horse such a glossy appearance. It has been suggested to me by Dr. Sheridan Lea that the comparative absence of fat may indicate that the secretion I obtained was almost entirely from the sudoriferous glands, and this is a point of some little importance in helping to settle the origin of the proteids, which I may say I regard as coming from the sudoriferous rather than the sebaceous glands. I hope shortly to be quite clear on this point.

In dealing with the ash my original idea was to estimate only the soda and potash, and for this purpose a considerable quantity of sweat was treated; later, I determined to make a more extended enquiry into the salts, but the amount of sweat then at my dispcsal was small, and I place no reliance on any determination of ash excepting that referring to potash and soda which is accurate.

In the second sweat analysis I lay no stress on the value of the soda and potash determination as I could only spare a small quantity of the fluid for the purpose, but on the other hand it is to be remembered that the horse was not in a perfect state of health.

It will be observed that the mineral substances in sweat exist in larger proportions than the organic matter, the chief salts being those of soda and potash; as we might expect from a knowledge of the ash constituents of the horse's food the potassium salts are in greater proportion than the sodium, but why so much alkali should be excreted by the skin, excepting it be to keep the proteids in solution, is to my mind very difficult of explanation.*

Perhaps, however, the ash constituents of the urine throws some light on it. I have shewn† that during work horses excrete by the kidneys less soda and potash than they do during rest, the following table shows the results obtained as a mean from a large number of observations.

	Rest	Work
	grams	grams
Potassium oxide	36·59	27·06
Sodium „	2·50	1·84

Now it would appear that the reason why less soda and potash is got rid of by the kidneys during work is on account of the elimination by the skin. Much more soda, comparatively speaking, is got rid of by the skin than by the urine. In 100 parts of the urine of rest and work, the proportion of soda to potash is as 1 : 14·7, whilst in 100 parts of sweat the soda is to the potash as 1 : 1·467. It is evident that the difference between the soda of the urine of rest and work will not account for the considerable increase occuring in the sweat.

It is essential to remember in connection with both the urine and sweat that none of these horses were receivingcommon salt with their food, so that no error can arise from this cause.

Though hardly within the scope of this communication, I may say that no matter how necessary sodium may be for herbivora in the wild state (as

* The salts in sweat are so large that when the coat has dried after profuse perspiration, it is no uncommon thing to see the hair matted together or lightly covered with saline material.

† *Proceedings Royal Society*, vol. xlvi., 1889.

travellers would have us believe), it is perfectly certain that under domestication they can be maintained in perfect health, without receiving any more than is normally contained in their food. I am compelled to make this remark after reading Woolridge's translation of Bunge's *Physiological and Pathological Chemistry*, Lecture VII., which, so far as the horse is concerned, is misleading. A horse likes salt, but he is equally as fond of sugar; apart from his likes he probably takes salt on the same principle that he licks the lime-wash off the wall, or licks plain or painted woodwork, or the cold iron of his manger, viz., either because he is suffering from dyspepsia or from idleness. Cattle are fond of eating worn out hair brushes, waste paper and knitting needles, and licking the hair off each other's bodies, but we cannot argue from this that these are essential to health; as a matter of fact they are very frequently fatal.

If we calculate the amount of soda and potash in the ordinary daily diet of a horse, we find it to be about 30 gms. Na, and 112 gms. K, or in the proportion of about 1 : 3·73; it is evident, therefore, even after taking into consideration the comparatively large excretion of soda by the skin, that the food supplies ample sodium salts for the purpose, without an artificial supply being needed. Why a horse is capable of existing in a state of health with so little soda in his food is a question I hope some day to try and answer.

We have no means of ascertaining with any degree of accuracy the amount of sweat secreted by a horse; the time of year, nature of the work, length of the coat, and the amount of "condition" present will all affect it, and, moreover, as previously mentioned, so much is left behind in the hair and cannot be removed. I have ascertained, however, that a short coat in the summer time will hold 720 c.c. of water; and no great error will occur by regarding this as the minimum amount of sweat secreted, which would give an excretion of 8·7 gms. of potash, and 5·9 gms. of soda by the skin. I think we have clearly shown that the diet is quite capable of furnishing the sodium required.

In conclusion, the results of my work may be thus summarised:

1. Proteids are excreted by the skin of the horse, and are probably derived from the sudoriferous glands. The object of this excretion is at present obscure, carried to any extent it seriously affects the health of an animal, it is largely kept under control by the process of clipping horses in the winter, and so preventing them from sweating.

2. Ether extracts an organic crystalline acid body, the exact nature of which could not be determined.

3. The mineral substances are nearly ten times larger than the organic, the two most prominent being potash and soda. There would appear to be some connection between the amount of these salts excreted by the kidneys and the skin, for during work, when the skin is active, less potash and soda is eliminated by the kidneys than during rest.

4. The fat is small; this probably indicates that the fluid examined was sudoriferous rather than sebaceous.

THE PARASITIC DISEASES OF THE DOMESTICATED ANIMALS.

WE have much pleasure in announcing that a new edition of Professor Neumann's admirable *Traite des Maladies Parasitaires* (*Non-Microbiennes*) *des Animaux Domestiques* will appear in the course of the year, and that arrangements have been made for its translation into English, concurrently with its passing through the press in France. The great value of the work and the high esteem in which it is held, are shown by the fact that the first edition was only published in 1888. The second edition will, we believe, be a much improved treatise.

Proceedings of the Royal College of Veterinary Surgeons and Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

QUARTERLY MEETING OF COUNCIL, HELD JANUARY 7TH, 1891.

Professor McCALL, President, in the chair.

Present: Dr. Fleming, C.B.; Professors Axe, Penberthy, Pritchard, Walley, Williams; General Sir Frederick Fitzwygram, Bart.; Sir Henry, Simpson; Messrs. J. D. Barford, J. Roalfe Cox, W. Hunting, H. Kidd, J. Malcolm, W. Mulvey, R. Rutherford, J. F. Simpson, R. C. Trigger, W. B. Walters, F. W. Wragg, G. Thatcher (Solicitor), and A. W. Hill (Secretary).

Absentees.

The following gentlemen were unable to attend:—Messrs. Cartledge, Whittle, Taylor, Briggs, Lambert, and Greaves.

Presentations.

The SECRETARY announced the following presentations to the library:—From Mr. W. T. Kendall, copies of the "Veterinary and Live Stock Journal" of July and October, 1890; and "Proceedings of the Eighth Special Meeting of the National Veterinary Association;" "Rabies and Muzzling," by Mr. T. B. Goodall; "The Journal of the Royal Agricultural Society of England," and the "Catalogue of the Harvard University."

Correspondence.

The SECRETARY read letters from Mr. Greaves; Mr. Lambert of the Army Veterinary Department; from the Solicitor, in regard to the Electric Lighting Company; also correspondence with reference to the Harvard University, having regard to its recognition.

On the motion of Dr. FLEMING, seconded by Sir HENRY SIMPSON, the correspondence from the Harvard University was referred to the Foreign and Colonial Schools Committee.

Election of Honorary Associates.

The SECRETARY stated that the following gentlemen were proposed as Honorary Associates at the last quarterly meeting, and that their names had been suspended in the usual way for three months:—M. Neuman, of the Ecole Vétérinaire, Toulouse; Mr. W. P. Kendall, of Melbourne; and Mr. Nocard, of the Ecole Médicine Vétérinaire.

Mr. J. E. SIMPSON moved that the signatures be attached to the diplomas proposed to be given to the three gentlemen mentioned.

Professor WALLEY seconded the motion, which was agreed to.

Finance Committee.

The SECRETARY read the report.

Mr. F. W. WRAGG moved that the report be received and adopted, and that the Treasurer be empowered to draw cheques to meet the outstanding liabilities.

Dr. FLEMING seconded the motion, which was carried.

Registration Committee.

The SECRETARY read the report.

On the motion of Mr. MULVEY, seconded by Professor PRITCHARD, it was resolved that the necessary authority be given to the Solicitor to prosecute in the cases mentioned in the report.

Other matters referred to in the report were adjourned, the necessary quorum of the Council not being present.

Parliamentary Committee.

The SECRETARY stated that the Sub-committee Charter had met, but had not yet reported to the Committee which appointed it; so that their work was not then complete to bring before the Council.

General Purposes Committee.

The SECRETARY read the report.

On the motion of Mr. MULVEY, seconded by Mr. TRIGGER, the recommendation in the report was referred back to the General Purposes Committee.

Committee in re Koch's Discovery.

The SECRETARY stated that he had written to the Veterinary Colleges in Russia, Germany, France, Italy, Belgium, and Austria, and had received four letters in reply. The Committee met on the 6th January, and reported that it was desirable to enter upon a course of experiments on the lower animals, with a view of testing the diagnostic and therapeutic value of Koch's fluid; that such experiments be conducted at the Veterinary Colleges of London and Glasgow; that a member of the profession be despatched to Berlin with all the necessary letters of introduction for the purpose of obtaining the fluid, and that Mr. Raymond be asked to undertake the mission.

Mr. MULVEY asked if any definite sum was going to be fixed for Mr. Raymond's expenses.

Professor WALLEY asked if there was any possibility of obtaining the lymph through the British Consulate.

The PRESIDENT said it was thought that an application through a member of the profession might be more likely to succeed.

Mr. J. F. SIMPSON did not think it was necessary for the Council to adopt the report. The matter had been referred to a special committee with power to act.

Professor PRITCHARD said the money was voted for scientific uses, and not to that particular matter.

Professor WILLIAMS thought the matter might be left in abeyance. The lymph by-and-bye would be manufactured wholesale by the German Government, and until that was done it would be a very difficult matter to get it.

Professor WALLEY said that, when the subject was first brought forward, he wrote a letter to the effect that he thought the matter premature. He did not oppose the movement, but it appeared to him that the idea of adopting that principle for the cure of Tuberculosis was absurd. It had now come to be a question of diagnosis, and not of cure at all.

Sir HENRY SIMPSON said he thought Professor Pritchard was under a misapprehension. Two resolutions were proposed and sent out on the agenda paper. The first, which was that a sum of £250 should be voted, was carried; and the second resolution was adopted in the following form: "In pursuance of the resolution regarding the treatment of Tuberculosis in animals the Council do forthwith ballot for a Committee of seven, including the

President, who is not to be balloted for, to carry out the foregoing resolution with full power to act." That resolution was unanimously agreed to.

Mr. HUNTING said it was clear that there was some misunderstanding. He proposed that the report of the Committee be not adopted; and, as they seemed to have the power of doing as they chose, that the Council request them to postpone action until some future time.

Sir HENRY SIMPSON said it was useless for the Council to stultify itself. There was no question that what was done was in order. The Council knew very well what they were voting about. They had balloted for a Committee of seven with full power to act. That Committee had been called together, and of course intended to act.

Professor WALLEY asked how it was that only two Colleges had been chosen at which the experiments were to be carried out. He did not see why the other Colleges should not be included.

The PRESIDENT said that on the previous occasion no one was present representing the other Colleges.

Sir HENRY SIMPSON said that an application from any of the other Colleges of Great Britain sent to the Committee would, of course, be entitled to equal consideration. The Committee were empowered by the Council to do certain things, and they had thought proper to send in the report that they had. The Council having delegated the power to the Committee could not go behind it. He did not believe that the Council had any right to pass such a resolution as that proposed by Mr. Hunting, or that the Committee had any right to recognise it. The resolution could not be legally passed, and if it were passed the Council was stultifying itself.

Mr. HUNTING said he would withdraw his motion, having protested against the action taken.

Mr. COX proposed that the names of all the Principals of the Colleges be added to the Committee.

Mr. KIDD seconded the motion, which was carried.

Professor WILLIAMS, in replying to Sir Henry Simpson's observations, maintained that what the Committee did could not only be reviewed by the Council, but that it could be put a stop to altogether. It was the Council that had delegated their power to the Committee, and if the action of the Committee did not meet with their approval, certainly they could withdraw that power.

Mr. COX said that, with reference to the full power of the Committee, he was perfectly convinced that nothing could be done by them without submitting it previously to the Council.

Committee in re Bursary to Students.

The SECRETARY read the report.

Mr. TRIGGER moved the adoption of the report.

Mr. COX seconded the motion.

Professor WALLEY moved as an amendment: "That £75 be given annually to assist graduates to prosecute their scientific studies."

The amendment not being seconded, the motion for the adoption of the Report was agreed to.

Mr. HUNTING thought that some answer ought to be given to the Central Society's letter. He moved that the Council accept the offer, and instruct the Secretary to acknowledge it with thanks. The grant was limited by the letter to anatomy, and it was for the Council to say whether they would accept the gift with any such limit. He did not think the Central Veterinary Medical Society tied themselves to anatomy, and he also thought that they would be very glad to hear any suggestion from the Council for the use of the £50. He moved that such a reply be sent.

Mr. TRIGGER seconded the motion.

Mr. J. F. SIMPSON moved as an amendment: "That a letter be written asking the Society if they could see their way to withdraw the condition with regard to anatomy."

Dr. FLEMING seconded the amendment.

Mr. MULVEY thought the Council might rest assured that there was no wish on the part of the Society that it should be limited to anatomy. It was simply a suggestion emanating from some of the members.

Mr. TRIGGER said he should be very sorry if there were a division. He thought it would be just as well to adopt Mr. Simpson's suggestion.

Mr. WRAGG said he felt sure that the Council of the Central would fall in with any suggestion made by this Council. There were four members of that Council present.

The amendment was then put and agreed to.

Court of Examiners.

Mr. HUNTING said that the agenda paper stated that they were to have a report from the Court of Examiners; he should like to see the report.

The SECRETARY said the report was drawn up in the usual way.

Mr. HUNTING said that the Charter and the Bye-Laws stated that the Court of Examiners should submit a report. He wanted to know where the report was.

Sir HENRY SIMPSON said the report stated the number of those who had passed, those who had passed with credit, and those who had passed with very great credit.

Mr. HUNTING: Who is the representative of the Court of Examiners?

Sir HENRY SIMPSON: The Examining Board.

Mr. HUNTING: Is there any signature to the Report?

Sir HENRY SIMPSON: The record sheets are all in possession of the Council.

Mr. HUNTING: That is not a report.

Sir HENRY SIMPSON said that a report was compiled and presented. Hitherto no other report had been asked for. He should think the Board of Examiners would be only too glad to give any report which was required.

The SOLICITOR said all the Bye-law stated was that a list of the successful candidates at each examination, signed by the Chairman of the Court, should be transmitted to the President.

Mr. COX said that there had been a certain custom observed; and he proposed that the Council furnish the form of report which it required to be delivered by the Examiners after each examination, with instructions thereon, to the Board from time to time. He had purposed giving that notice of motion, but now would be the opportune time to do so.

Mr. RUTHERFORD said that since he had held the post of Secretary in Scotland, he had been in the habit of sending in a very full report.

Mr. KIDD said that since he had been on the Council he had never seen a report from the Court of Examiners.

Dr. FLEMING said that the Examining Board was composed of a number of sections, and each section had its chairman. The chairman submitted to the secretary the names of those who had passed, and he believed those names were submitted to the Council. If any special report were required, it was for the Council so to rule. Hitherto no form had been required, except that from the formation of the College it had been the custom for the names of those who had passed to be read. The Council had never asked at any time for any special report.

The PRESIDENT observed that the record sheets were open for inspection.

The SECRETARY read the report and record sheets, from which it appeared that the number of students that had passed the various Colleges were as follows:—Class C, Final, 56; Class B, Final, 49; Class A, Final, 42.

Professor WALLEY suggested the appointment of reserve examiners.

Mr. KIDD moved the reception and adoption of the report of the Court of Examiners, but that it be not published.

Professor WALLEY seconded the motion.

Dr. FLEMING said he was not aware that the present report was in any way different from the reports of former years.

Mr. HUNTING contended that reports should be forwarded by the examiners The report which had been read from Mr. Rutherford was of itself sufficient evidence of the necessity of such reports. Little complaints were heard unofficially, but if they had a written report from the examiners they would come before the Council in a proper manner, and could be dealt with. The Council ought to know how the students had acquitted themselves, and whether any subject might be improved or omitted. All those things could only be gone into by having a proper written report from the Board of Esaminers.

Sir HENRY SIMPSON testified to the cordiality and kind feelings which had always existed between the Principals of the schools and the Board of Examiners.

General Sir FREDERICK FITZWYGRAM said he thought it would be desirable that the Council should express its wish that in future a detailed report should be sent from London. It was his opinion that all the specimens ought to be prepared by the examining body, and not received from the schools where the students were examined.

The motion for the adoption of the report was agreed to.

Mr. HUNTING moved: "That it be an instruction to the Court of Examiners to furnish, through their Chairman, a report to the Council of each examination, stating the names of the men who have passed, the standard attained in each subject, and other matters which may be considered necessary."

Dr. FLEMING said that that was done at present.

Mr. HUNTING said that if that were so he would ask for any report that had been furnished to the London section for the last ten years to be produced.

Professor AXE seconded Mr. Hunting's motion.

The SOLICITOR pointed out that if it were to be an instruction the Court of Examiners were not bound to carry it out. The Charter said nothing about a report at all. It simply allowed examinations to take place, and the bye-law said what was to be done.

Mr. HUNTING then withdrew his motion.

The Fellowship Degree.

The SECRETARY read the report of the Court of Examiners for the Fellowship Degree, which stated that the Degree had been conferred upon Professor Shave, R.V.C., Messrs. H. C. Wilkie, of Bodmin, Cornwall, T. A. Hubbard, of Cheltenham, and F. G. Ashley, of Bath.

The report was adopted.

Mr. RUTHERFORD moved: "That the name of the Scotch Secretary, having a position on the Examining Board, be placed upon the Register."

Professor PRITCHARD seconded the motion, which was agreed to.

The SECRETARY read the obituary list.

On the motion of Sir HENRY SIMPSON, seconded by Mr. WALTERS, it was resolved: "That the dates for the examination of students shall be fixed by the Council at the quarterly meetings in April and October in each year."

The following notice of motion was given by Mr. COX: "To consider a suggestion to introduce post-graduate courses of instruction by lectures,

demonstrations, and microscopic work in connection with veterinary sanitary science and public health; and the introduction af an examination annually by the Royal College of Veterinary Surgeons, amongst other things, on the inspection of animals, living or dead, affected with disease which is communicable, or may be suspected to be communicable, to mankind, and the inspection of the flesh and milk of animals so affected, and the general appearance and the microscopic changes therein rendering the consumption objectionable for human food; and the granting of a certificate of special qualification for appointments to the office of inspectorship."

The meeting was then made special for the purpose of considering the adoption of the revised Regulations for the Examination of Students in General Education.

Professor AXE moved:

1. Students who enter the Veterinary Schools shall, prior to their first Professional Examination by the Royal College of Veterinary Surgeons undergo an examination in the undermentioned subjects, or produce a certificate of having passed one of the following examinations:

(1) For Matriculation, or any higher examination for degrees, or one of the "Local Examinations" held by a university in the United Kingdom, or by a colonial or foreign university recognised by the Council of this College.

(2) For the Certificates of the First Class or First Division of the Second Class granted by the College of Preceptors.

(3) An examination recognised by the General Medical Council as exempting candidates from the Preliminary Literary Examinations of the various medical corporations, or a certificate of examination by the Incorporated Law Society, or the Preliminary Examination of the Pharmaceutical Society.

(4) (i) Intermediate Education Board of Ireland, Senior or Middle Grade; (ii) Apothecaries' Hall, Ireland; (iii) Military, Naval, Civil Service, Marine, and Divinity—any part of the United Kingdom; provided that all these examinations include the obligatory subjects as laid down by the Royal College.

2. Students who do not produce one or other of the certificates referred to shall be examined by a Board of Examiners appointed by and under the direction and supervision of this College, the examination shall be uniformly applicable to the whole of the United Kingdom, and the result of the same shall be reported to the Council. The nature and extent of this examination shall be fixed by the Council from time to time. It will be of two classes of subjects—one obligatory and the other optional.

The following are the subjects of examination:

PART I.—*Obligatory Subjects.*

1. Reading aloud.
2. Writing from dictation.
3. English grammar, with parsing and composition.
4. Arithmetic—the simple and compound rules, with vulgar and decimal fractions.
5. Either outlines of English history or geography of Europe and the British Isles.
6. The following foreign languages:—

Latin.—First Book of "Cæsar's Commentaries," or an alternative "unseen" paper;
and either—

(*a*) French (no set book) or
(*b*) German, ditto.

PART II.—*Optional Subjects.*

1. Euclid—Book I., or the subjects treated therein.
2. Algebra to quadratic equations.

3. Natural history, zoology, botany, physiology (one branch only).
4. Inorganic chemistry.
5. Mechanics.
6. Any of the specified foreign languages not taken as obligatory.

That a record be published after each examination indicating the intending students who have passed the optional subjects, and what those subjects are.

That the marks to be obtained by students in the Matriculation Examination shall be 50 per cent. in reading and in writing to dictation, and 30 per cent. in all other subjects.

That these regulations shall come in force on and after the 1st September, 1891.

Dr. FLEMING seconded the motion.

Professor WALLEY said that the first section stated, "a colonial or foreign university recognised by the Council of the College." In order to avoid such difficulties as had arisen in the past, might it not be as well to define what was meant by recognising, and what was meant by not recognising? There were the whole of the colonial and foreign universities, and how did they know that they might not be bogus universities?

Professor PENBERTHY thought it had been decided that until any College was specified by the Committee, it should not be recognised. Some of the examinations which he saw specified did not contain their obligatory subjects, and men might come in without doing one, two, or three of those subjects.

Professor WALLEY said there was one degree which apparently had not come under the cognizance of the Committee, namely, the Government Leaving Certificate of the Educational Department of London. It was accepted by all the medical corporations, and he thought it ought to be included.

Mr. TRIGGER thought that, instead of adding to the list, it would be well to strike out everything except the first and second resolutions.

Sub-sections 1, 2, 3, and 4 having beenadopted,

Mr. WALTERS moved the addition to the list of "the Government Leaving Certificate of the Educational Department of London, provided on inquiry it was found to cover all the obligatory subjects."

Professor WALLEY seconded the motion.

Mr. HUNTING moved as an amendment that the list remain as it stood.

Mr. J. F. SIMPSON seconded the amendment, which was carried.

Professor PENBERTHY moved the addition of the rider: "Provided that all these examinations include the obligatory subjects as laid down by the Royal College."

Mr. MULVEY seconded the resolution, which was agreed to.

On the motion of Professor WALLEY, seconded by Professor WILLIAMS, Section 2 was agreed to.

On the motion of Professor WILLIAMS, seconded by Mr. J. F. SIMPSON, the first five obligatory subjects were agreed to.

Professor WALLEY moved the acceptance of No. 6.

Mr. TRIGGER seconded the motion.

Mr. HUNTING proposed as an amendment, unless the optional subjects were done away with: "That Latin, French, and German be put into the optional subjects, and that any one of those subjects might be adopted, in which case he would increase the severity of the Latin examination by making it the first two books of Cæsar, or by simply making it an 'unseen' paper."

Professor WILLIAMS wished No. 6 to read as follows: The following foreign languages, either Latin, French, or German," and he moved an amendment to that effect.

Mr. TRIGGER observed that at the annual meeting there was a strong majority in favour of Latin being made obligatory.

Professor WALLEY said that if Professor Williams put his proposition he would drop his motion.

Professor AXE thought it would be most unfortunate if Latin were not made an obligatory subject.

The resolution adopting No. 6 was then put and agreed to.

Mr. HUNTING moved that the whole of "Part II, Optional Subjects," be deleted.

Mr. MALCOLM moved that Nos. 1 and 2, "Euclid, Book 1, or the subjects treated therein; Algebra to Quadratic Equations," be added to the obligatory subjects. This was not seconded.

Professor WALLEY said that the optional subjects, as they were, were misleading. Students were constantly writing asking what was their use.

Professor AXE moved: "That Part II, Optional subjects," stand as it was, adding the following rider: "That a record be published after each examination indicating the intending students who have passed the optional subjects, and what those subjects are." The resolution was agreed to.

Professor AXE moved: "That regulation 17 of the Regulations for Professional Examinations be altered by striking out the words 'twelve months' on the sixth line thereof, and by substituting the words 'three years' in place of the words so struck out."

Professor WILLIAMS seconded the motion, which was agreed to.

On the motion of Sir HENRY SIMPSON, seconded by Professor PENBERTHY, it was resolved: "That Bye-law 48 be altered, by adding to the investments authorised for the funds of the College, mortgages on real securities in England or Wales, or on heritable property in Scotland, or on bonds, mortgages, or debentures of incorporations or incorporated companies paying dividends on their ordinary stock, in accordance with Section 17 of the Charter of 1876, and the Trusts Investment Acts."

Professor WALLEY withdrew the following resolution, of which he had given notice of motion: "That the present period of study be extended by the addition of at least three terms." He then moved: "That the examination in Materia Medica be rendered more strict than it is at present, and that it shall include Practical Pharmacy; and that the time of the Practical Examination of students be extended."

Professor WILLIAMS thought that so far as Materia Medica was concerned there was plenty of time to examine upon it. Practical Pharmacy was an important subject, and they might be justified in going to the expense of adding another examiner to the practical examination.

Sir HENRY SIMPSON though they might wait at present and see if anything was done by the new Charter with a view to compulsory pupilage.

Mr. RUTHERFORD said that if practical pharmacy was included they must have separate tables, which would mean another scale of fees, as it would be doing an injustice to put more work on the examiners without their receiving additional pay.

The PRESIDENT thought they might very well go on as they were.

Professor WALLEY said he should be quite content to let the matter stand over till they could do something with reference to the increase of examiners.

The motion having been withdrawn,

Professor WALLEY moved: "That the marks to be obtained by students in the Matriculation Examination shall be 50 per cent. in reading and in writing to dictation, and 30 per cent. in all other subjects."

Mr. TRIGGER seconded the motion, which was carried.

On the motion of Mr. TRIGGER, seconded by J. F. SIMPSON, it was resolved: "That it be an instruction to the examiners that the time allowed for the Practical Examination of students be extended."

Notices of Motion.

Mr. HUNTING gave notice of motion for the alteration of Bye-law 31: "That

this bye-law be altered so far as the first three lines, ending at the word 'President.' 'A report of each examination, signed by the Chairman of each section, shall be transmitted to the President and Council stating the names of successful candidates, the general standard of excellence attained in each subject, and referring to any other matters which it is desirable should be notified by Council.'"

General Sir FREDERICK FITZWYGRAM gave the following notice of motion:

"(1) That the Quarterly Meetings be held on fixed days.

"(2) That special meetings shall not be summoned except on occasions of most urgent necessity.

"(3) That thirty minutes instead of twenty minutes be allowed to each student at each table at the Final Examination, and also at the Practical Examination for horses, and the same for cattle.

"(4) That no more than eighteen candidates be examined in one day at any table in the First and Second Examinations; nor more than twelve in the Final Examination."

Mr. F. W. WRAGG gave notice of motion: "That a chartered accountant be appointed to audit the accounts of the College, and to prepare the annual balance sheet.

A vote of thanks was accorded to the President, and the Council adjourned.

SPECIAL MEETING OF COUNCIL, HELD JANUARY 20TH, 1891.

Present:—Dr. Fleming; Professors W. Axe and Pritchard; Messrs. J. D. Barford, J. Roalfe Cox, Hunting, Mulvey, R. Trigger, Walters, Wragg, G. Thatcher (Solicitor), and A. W. Hill (Secretary).

On the motion of Mr. BARFORD, seconded by Mr. TRIGGER, Dr. Fleming was voted to the chair.

The SECRETARY read the notice convening the meeting.

On the motion of Mr. MULVEY, seconded by Mr. BARFORD, the minutes of the previous meeting were taken as read and confirmed.

Absentees.

The SECRETARY announced that letters regretting inability to attend had been received from Professor McCall, Mr. Briggs, Mr. Malcolm, and Mr. P. Taylor.

Correspondence.

The SECRETARY read a letter from Professor McCall expressing the opinion that Latin should be taken in the obligatory subjects in the new bye-laws, without either French or German being mentioned.

The SECRETARY was instructed to write to the President to the effect that Latin had been passed at the last meeting as an obligatory subject, and either French or German.

Confirmation of New Bye-laws and Regulations.

The confirmation of these, which were passed at a special meeting held on the 7th of January, came up for consideration.

The discussion on the revised Regulations for the Examination of Students in General Education was resumed by Mr. MULVEY, who said that with reference to the latter part of Clause 4, "provided that all these examinations include the obligatory subjects as laid down by the Royal College," he fancied that some of the certificates that were mentioned did not include "reading aloud," and "writing from dictation." He thought it would be as well if those words were altered somehow; it might be put "of equal value with the certificates of." As it was, some good certificates would be ex-

cluded if they did not mention "reading aloud" and "writing from dictation."

The CHAIRMAN thought they could not alter the wording at that meeting, as they were only there to confirm the resolutions. The new regulations must be either accepted or rejected. The best way was to pass them, and then if Mr. Mulvey wished to alter them, to give notice of his intention to do so.

Mr. MULVEY said he would acquiesce in that, and give notice of the alteration.

The regulations were then confirmed.

The second alteration was then considered, viz., "That Regulation 17 of the regulations for professional examinations be altered by striking out the words 'twelve months' on the sixth line thereof, and by substituting the words 'three years,' in place of the words so struck out."

Mr. HUNTING asked the meaning of the substitution.

The SOLICITOR said it was to make Regulation 7 in accordance with Regulation 17.

Mr. HUNTING thought it would make the division between the examinations practical and oral more distinct than before, the thing they wanted to avoid.

Mr. ROALFE COX said it was intended that if a student failed in his first examination he might go up again any time within three years.

The SOLICITOR said it was for re-entry after failing in the practical.

The CHAIRMAN said he must fail in his practical, and then he could come up again any time during the next three years. It was a very long interval, no doubt.

Mr. WALTERS said it was all in favour of the student.

Mr. MULVEY said he felt inclined to confirm the first part, and not to confirm Clause 2; but as they were bound to confirm it or reject it, it would be better to reject it and let matters stand as they were.

The SOLICITOR said that students were constantly complaining, and asking the Secretary which of the regulations they were to follow. He thought perhaps it would be best to let it pass, and give notice of an alteration.

Professor PRITCHARD said he should move the rejection of the second clause.

Mr. HUNTING said he should propose its adoption, because it was only to reconcile a difference between the two rules, and it was an important educational matter that ought to be discussed.

The CHAIRMAN said the matter had been already discussed.

Professor AXE was also quite clear that the matter had been discussed. He was certain that Professor Brown proposed it, and it was agreed to by the Council. The Secretary referred to the minutes, and found that it was passed in July, 1889.

The motion for the confirmation was then put to the meeting and carried, one member voting against it.

The following was also confirmed :—

"That Bye-law 48 be altered by adding to the investments authorised for the funds of the College, mortgages on real securities in England and Wales, or on heritable property in Scotland, or on bonds, mortgages, or debentures of incorporations or incorporated companies paying dividends on their ordinary stock in accordance with Regulation 17 of the Charter of 1876 and the Trusts Investment Acts."

Notice of Motion.

Mr. MULVEY gave notice of his intention to move : "That the latter part of Clause 4 be left out from the words 'United Kingdom,' viz., 'provided that all these examinations include the obligatory subjects as laid down by the Royal

College; 'and in addition to that, that Part. II. of the optional subjects be left out."

SPECIAL MEETING.

A special meeting was held at the conclusion of the confirmatory meeting for the purpose of appointing delegates to represent the College at the forthcoming International Congress on Hygiene and Demography.

The SECRETARY read several letters that had passed between Professor McCall and Mr. Ernest Clark, the Secretary of the Royal Agricultural Society, with reference to the name of the President being inserted on the Committee and asking his aid. The President had, he said, sent on the correspondence to him (the Secretary) desiring him to lay it before the meeting. Among the papers so sent was a circular containing information as to the objects of the Congress, from which it appeared that a section had been set apart to consider such subjects as the following: "Comparative Etiology," "The Relation of the Diseases of Animals to those of Man," "Infectious, Parasitic, and other Diseases communicable from Animals to Man;" and that Professor G. T. Brown had been appointed Vice-President, with Mr. Duguid as one of the joint Secretaries A letter had been sent by him to one of the Hon. Secretaries of the Congress at the request of the President, to the effect that the circular of December last had only just come under his observation, and that it would come under the consideration of the Council at a special meeting; and that he had no doubt delegates would be appointed to represent the College at the Congress, and that a subscription would be given to the fund being raised to defray expenses. Amongst the names of the medical and other societies and corporations that had been asked to send delegates, that of the Royal College of Veterinary Surgeons did not appear.

The CHAIRMAN thought it was a peculiar thing that the College should be left out in the cold in such a matter. He felt it most acutely.

Professor PRITCHARD said his suggestion was that they should leave them out in the cold.

The CHAIRMAN said he felt very much the same.

Mr. WALTERS thought it would only be becoming on the part of the College to have nothing whatever to do with them.

The CHAIRMAN thought Professor Brown should have said something for their profession with regard to the matter. It would be a grave oversight for them to go there and discuss such matters as were included in the programme under the auspices of an Agricultural Society. He did not think it had any relation to agriculture at all.

Mr. HUNTING considered it undesirable that they should entirely wipe themselves out in the matter; in the eyes of the public it would be a pity for them not to be represented in a Congress like this. If it was not too late he thought they ought to follow out the suggestions of their President. According to his letters Professor McCall had nearly arranged with the Congress Committee that he would take part in it, and he thought it only right that the Council should back him up.

Professor PRITCHARD understood the President only to ask that the matter should be brought to the notice of the Council.

The CHAIRMAN confessed that he did not like the profession left out in such a subject. They were simply now being brought in as a kind of afterthought to assist in discussing certain matters. The College ought to have been considered in the organization of the Congress.

Professor PRITCHARD thought that the Organising Committee might answer that, as Professor Brown and Professor Duguid were officials in the section, the College was represented.

Mr. MULVEY thought that, however that might be, the profession was left entirely out in the cold in the matter.

Mr. WALTERS said that Professor Brown was probably holding his position from his official capacity, and not as a member of the Royal College.

Mr. ROALFE COX agreed with Mr. Hunting that it was better not, on the spur of the moment, to reject any association whatever with the Congress.

The SECRETARY said the matter began by the President writing to him and asking that the matter should be laid before the Council.

Mr. MULVEY believed the President wrote to Mr. Ernest Clark. That was how the whole matter began. The President asked that the College might be allowed to take part in the Congress.

Mr. HUNTING said that the President had positively accepted a position on the Committee. He should propose that the Council, through the Secretary, should write to Mr. Clark, asking him whether it was too late to place the Royal College of Veterinary Surgeons on the list of other bodies, and if it was not too late, that the College would be glad to act and further the objects of the Congress. Mr. Ernest Clark, as far as he could find out, was really the prime mover in the matter.

The CHAIRMAN said that that was not so, as his name did not even appear on the circular.

Mr. BARFORD thought that, in deference to their President, they could not do otherwise than back him up in his wish that they should join in and support the congress.

Mr. WALTERS thought that if they wrote such a letter as was suggested by Mr. Hunting, they would be humiliating themselves and degrading the profession.

Mr. HUNTING said that the probability was that every other society had done so at the proper time.

Professor AXE said he felt, with the general body of the Council, very keenly the position in which they were placed. It appeared to him to be not exactly the position they should be in if they had received that amount of consideration and courtesy which the Organizing Committee should have shown them. He thought they could make no complaint against the Royal Agricultural Society, or anybody else.

The CHAIRMAN said he would like the President to act in the matter. He maintained that the College had a dignity to uphold, especially in discussing such a matter as this.

Mr. BARFORD suggested that at the earliest possible date the Secretary should communicate with the President and explain to him the exact feelings of the gentlemen round the table, as they considered that they had been decidedly neglected and passed by, and that the matter should be left in his hands.

The CHAIRMAN thought they were not in a position to discuss the matter then, and he would propose that the meeting be adjourned. He did not feel inclined to arrive at any decision then. The President should be communicated with as to the result of the meeting.

This was agreed to, and the meeting adjourned *sine die*.

AT meetings of the Board of Examiners, held in Edinburgh and Glasgow, on and between December 18th and 23rd, the following gentlemen passed their final examination and were admitted members of the Royal College of Veterinary Surgeons.

Dick College.

Mr. J. Boase	Dundee.
„ H. C. Harris	Edinburgh.
„ H. Kenny	„
„ W. J. McCartan..	Newtown and Co. Down
„ S. Stockman	Edinburgh.

Mr.	J. Thompson	Hetton-le-Hole, Durham.
„	R. St. John Walley	Edinburgh.
„	W. B. West	Dublin.
„	W. Williams	Llandre.
„	D. H. Wood	Falkland, Fifeshire.
„	G. H. Yates	Widnes.

New College.

Mr.	J. D. Baker	Limerick.
„	R. Bell	Arbroath.
„	J. Brand	Belfast.
„	M. A. Cassidy	Enniskillen.
„	J. Cockburn	Kelso.
„	T. Hume	Kelso.
„	J. P. Isherwood	Edinburgh.
„	J. A. R. Towers	Liverpool.

Glasgow College.

Mr.	P. Connolly	Warrenpoint, Co. Down.
„	A. J. Milligan	Dalbeattie.
„	T. B. Muter	Glasgow.
„	A. Hill	Ballynahinch, Co. Down.
„	R. H. Dalgleish	Glasgow.
„	A. Millar	Lochwinnoch, Renfrew.
„	J. Kinnear	Glasgow.
„	T. H. Griffin	Skerries, Co. Dublin.
„	B. Ferrie	Paisley.
* „	W. S. McMurrich	Helensburgh.
„	C. A. Squair	Kildrummie, Nairn.
„	J. Meikle	Stranraer.
„	W. Logan	Ayr.
„	D. Clark	Kilmarton, Argyle.

The following gentlemen passed their Second Examination :—

Dick College.

Mr. W. T. Elder.
„ T. Maughan.
„ T. Smith.
* „ J. Loughran.
Mr. G. F. Prickett.
* „ J. Tainsh.
„ J. A. Moore.
„ H. Shaw.

New College.

Mr. F. T. Blakemore.
„ A. W. Bland.
* „ M. J. Carroll.
„ A. Ellison.
* „ J. Farmer.
„ N. Fraser.
„ J. S. Gould.
Mr. T. H. Jowett.
„ J. M. Lund.
„ T. Lanchester.
* „ J. W. Martin.
* „ W. C. Patrick.
„ R. Taylor.
„ C. D. Wishart.

Glasgow College.

Mr. H. H. Hazel.
† „ F. T. Barton.
„ H. L. Chambers.
Mr. W. M. Williams.
„ R. Mason.

The following gentlemen passed their First Examination :—

Dick College.

Mr. W. Blackburn.
„ W. Connor.
* „ M. Dugdi.
† „ E. R. Gibson.
„ G. R. Grant.
„ E. Hall.
„ G. C. Hill.
Mr. R. Harris.
„ J. Hamilton.
„ J. W. Masheter.
„ W. S. Mills.
„ T. J. Nolan.
„ J. Peddie.
„ E. H. Pratt.

Glasgow College.

Mr. McRobbie.
„ F. W. Thompson.
„ A. C. Howatt.
„ D. S. Houston.
Mr. J. Paterson.
„ W. L. McKenzie.
„ F. Dyke.

New College.

Mr. H. B. Allen.
„ J. Bibby.
„ J. P. Byrne.
* „ A. T. Copeland.
„ H. Deakin.
„ B. A. Fowler.
Mr. B. Holmes.
„ J. W. Irving.
„ J. Nuttall.
„ J. S. Smith.
„ A. Tully.

R. RUTHERFORD, F.R.C.V.S.,
Secretary to Board of Examiners.

Marked thus * passed with great credit.
„ „ † „ „ very great credit.

Edinburgh, *Dec.* 31, 1890.

THE MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

A MEETING of the Association was held at the Bell Hotel, Derby, on the 14th of November, when Mr. F. W. Wragg, the president, occupied the chair. There were present: Messrs. W. S. Carless and G. Rossell, Vice-presidents; Dr. Manley, West Bromwich; Professor Penberthy, R.V.C.; Messrs. Burchnall, Loughborough; J. H. Kenyon, Derby; J. Coe, Stoke; Captain Russell, Grantham; — Brett, Nottingham; R. C. Trigger, Newcastle-under-Lyme; Geo. Smith, Tunstall; J. A. Gold, Redditch; F. B. Jones, Leicester; — Wiggins, Market Harboro'; T. H. Merrick, Northampton; A. L. Gibson, Birmingham; Harvey Collett, West Bromwich; G. Wartnaby, Burton-on-Trent; and the Secretary (J. Malcolm).

The Secretary read letters and telegrams which he had received from the following gentlemen, regretting their inability to be present: Sir H. Simpson, Professors Pritchard, McFadyean, Williams and Walley; Messrs. Blakeway, Oliver, Greaves, Kidd, Barling, Beddard, Carless, etc.

New Members.

The following gentlemen were elected members of the Society:—Messrs. Alton, Tutbury; J. R. Carless, Shrewsbury; — Weighill, Gloucester; F. J. Carless, Stafford.

Mr. Wiggins nominated Mr. Fraser, of Leicester, and Mr. Malcolm nominated Mr. Barrett, of Nuneaton, and Mr. Crowhurst, of Leamington; and Dr. Manby, West Bromwich, was nominated as a Honorary Associate.

Blackleg in Calves.

Mr. MALCOLM proposed the following resolution standing in his name: "That a committee be appointed to investigate and report on the efficacy

of various preventives of Blackleg in Calves." He said, "In bringing this matter before you it may be desirable that I should explain what we really look for from this enquiry. In doing so I shall be as brief as possible, and shall not stand between you and the essayist of the day for more than a few minutes. Well then, in asking you to undertake this investigation we do not expect you to break up any new ground or undertake any new or original research; but what we do desire is that you shall test by practical experiment the efficacy of reputed preventives of Blackleg, and report the result of these experiments. Practically we might limit the reputed preventatives to two—setoning and inoculation—for although it is customary to give certain medicines and bleed in the name of prevention, no one really looked upon these latter methods as preventives; of course I do not say there might not be medicinal preventatives, but so far none were known—at least I know none, and never met a veterinary surgeon who did. With reference to setoning, it was for a long time looked upon as the one preventive, both by stock-owners and veterinary surgeons.

During recent years, however, since something was known of the real nature and the disease, many had doubted the efficacy of setoning in preventing it. We failed to see how a specific disease due to a specific organism could be prevented by the insertion of a piece of string in the dew-lap. But, on the other hand, it should be remembered that when any belief was so firmly held as was the belief in the benefits of setoning for Blackleg, there was frequently to be found some good foundation for that belief, and recently a somewhat ingenious attempt had been made to explain the action of setoning. It was said that a constant sequel of setoning was suppuration, and that no suppuration took place without the presence of organisms, and might not these pyogenic organisms act as the prophylactic agents in the prevention of Blackleg, in a similar way that the virus of Cow-pox prevented Small-pox. Whether there is anything in that is not for me to say, nor would I ask the committee in what way setons acted, but I would ask them to settle the question, did they act at all? We want some positive information on the point, and so far we have only negative. The members of this Society want to be able to go to their clients and say with authority, "setoning is a preventive," or "setoning is not a preventive." As a proof of the diverse opinion now existing on the matter, one member of that Society asserted he had setoned thousands, and all had been protected from Blackleg. Another member was equally positive of its inefficacy. I have only setoned about a hundred atogether, yet I have seen two or three of these lying dead from Blackleg with the setons in their dewlaps.

Proceeding to the next reputed preventive—namely, inoculation, he referred to the large extent it had been employed on the Continent. It was found that when the muscle juice from the emphysematous swelling of Blackleg was injected into the subcutaneous tissue of healthy calves, fatal Blackleg supervened, but if this liquid was injected into the blood stream no marked disturbance followed, yet the animal was protected from the disease. This was the method introduced into this country by the late Professor Robertson and by Professor Penberthy, and they were indebted to them for showing that inoculation was a real preventiee. This method had not extended, probably on account of difficulty in obtaining the fresh virus, and probably also owing to the somewhat delicate and risky nature of the operation. They were recently informed by Professor McFadyean that on the Continent all difficulty and risk in the operation had been removed by the employment of an attenuated virus, and that perfect immunity from Blackleg was claimed in animals so inoculated, and it was said that 1,100 animals had been operated upon this year without a single mishap. If results like that were

attainable on the Continent, surely the same might be secured here. He had been in communication with Professor McFadyean, and indeed it was entirely at his instigation that this investigation was proposed. From the Professor he read a letter suggesting methods of procedure in the matter, and offering to supply the attenuated vaccine, and to give the Association any other assistance in his power.

Professor PENBERTHY, in seconding the resolution, said the subject was one of especial interest to him, and he thoroughly endorsed the idea of an inquiry into the matter. This disease, throughout large portions of the county of Shropshire and certain portions of the counties of Kent and Surrey, actually killed about seven per cent. of the animals, whilst they positively knew by experience that it was a preventible disease. He had had an opportunity of seeing eleven animals that had been properly setoned, and which after due time had elapsed had fallen victims to the disease it was sought to prevent; so that in these eleven cases at any rate, setoning had not prevented Black-quarter. Then as regarded injection into the blood, that was tested on a large number of animals; and while speaking of that, he should also like to say that they could not draw any conclusions from experiments on a small number of animals, because many animals were known to be immune to disease, while others contracted it very readily. Unless they had a large number of animals at their disposal, it was not worth their while taking any steps in the matter.

Mr. BRETT said he was brought up upon a Blackleg farm, and they used to drench the animals every month. So long as that was carried out, they never lost one animal, but on one occasion the operation was missed for two months, and two of the best heifers were found dead. The drenching was re-continued, and no more animals were lost. It became a great trouble, however, and they tried setoning for a change, but they lost many calves, and went back to drenching once more, with the same satisfactory results.

Mr. MERRICK said he had had a great deal of Blackleg in this country, and he used to seton a large number of animals. That was generally looked upon as a preventive, but it was not a total preventive. He agreed with Mr. Brett on the subject of drenching, but the only difficulty appeared to be that they could not get people to drench every month.

Mr. TRIGGER said he had great experience in Blackleg, and he honestly believed in setoning as a preventative. He did not believe it infallible, because he had seen setoned calves die.

Mr. SMITH said he had setoned many hundreds of calves with the best possible result. He believed also in giving about a wine-glass full of turpentine every month.

Capt. RUSSELL said he was not altogether a champion of setoning, but he was to a certain extent. He knew of the case of a gentleman who had lost a lot of calves through Black-quarter, and who tried setoning with beneficial results. Their thanks were due to Mr. Malcolm for bringing the matter forward in the manner he had done. He should be happy to assist the committee in every possible way in making out a report.

Mr. MALCOLM'S resolution was then submitted to the meeting and carried unanimously. After which that gentleman said he should propose the committee be a small one for obvious reasons. A large number on the committee would only prove a hindrance, yet he had no doubt that any member of the Association would be heartily welcomed at any of the meetings. He should propose that the committee consist of Professor Penberthy, Captain Russell, Mr. Blakeway, senior, and Mr. Olver, himself (as secretary), and the chairman, of course being *ex officio* members of the committee, with the distinct understanding that every member of that Association be allowed to attend the meetings. The carrying out of the arrangements might very well be left

to the committee, as it would not be wise to tie their hands in any way.

Mr. WARTNABY seconded the appointment of the gentlemen mentioned, and said he thought the selection a very desirable one. He suggested the advisability of carrying out the investigations on farms where Blackleg was prevalent. If they took the calves away and subjected them to other influences than those with which they were originally surrounded they would, to a material extent deteriorate the value of the experiments.

The proposition was carried unanimously.

Dr. MANLEY, Medical Officer of Health for West Bromwich, read the following paper.

THE JOINT SANITARY WORK OF THE MEDICAL AND VETERINARY PROFESSION.

MR. PRESIDENT AND GENTLEMEN,—When it was suggested to me that a paper from my humble self would be considered worthy of your acceptance, I can assure you that I felt it to be a compliment to so young a member of my profession, and in casting about for a subject upon which we might meet on common ground, it seemed to me that some of my own difficulties as a M. O. H. might furnish me with a text for my address.

When I became a sanitary officer in my own right at the commencement of this year, the work was not new to me, as I had been assisting my predecessor in office for several years previous; but it was not until I became personally responsible that I fully realised some of the difficulties under which I should have to labour, and when I found that in some of these troublesome matters I could be benefited by the intelligent co-operation of my veterinary friends, I thought I should not do amiss in bringing them before your notice.

First, then, sir, I propose to speak of the question of meat supply; here, if anywhere, we must unite our forces. There is no need for me to tell you of the importance of a healthy meat supply; probably you are as well aware as I am of the enactments under which it may be provided, and of the practical difficulties in carrying them out. Professor Walley has, I fear not without good reason, derided the ability of the average medical man to judge of the soundness or otherwise of flesh for human food; and I am bound to admit, speaking from the experience of my own education, that he is right. The study of comparative anatomy, physiology, and pathology is almost unknown in our medical schools; there are, however, some of us who have endeavoured to acquire some knowledge of such subjects, and who are fully aware of their increasing importance; for myself, the more I become acquainted with comparative pathology the more do I feel the need of expert assistance.

Now, sir, as to the meat question: at the present time, in most sanitary authorities, the inspection of meat is either entirely neglected or else is carried out under such disadvantageous circumstances as to be practically useless. In the large towns, *e.g.*, London, Liverpool, Hull, etc., where there are public abattoirs, and where the meat can be inspected with ease, it is possible to carry out the duties of an inspector; but in such a case as my own very little can be done. Perhaps West Bromwich is an exception, but I fear it is not so. I found upon the slaughter-house register no less than 135 licensed slaughter-houses, and this for a population of 60,009; no less than forty-five of these are actually in use, and scattered over an acreage of 5,710. This makes inspection pretty difficult; but when the only inspector is the sanitary officer who has the whole borough under his charge, and who also has to work the Notification Act, you will see the need of something like a properly qualified inspector. At the present time the veterinary surgeon has no *locus standi* in the condemnation of meat; the question is entirely left to the inspector of nuisances and the medical officer of health, and they have not even discretionary power to call in a veterinary expert. My contention is

that in this matter the veterinary surgeon and the medical officer should act together, and that the opinion of either should be taken, or, if necessary, of both, and this is essentially a matter which it is to the interest of your profession to take up. I have not said much about the provision of public or central slaughter-houses, because I feel sure that it is a subject upon which we are all agreed, but there is a point to be considered, and that is the extreme importance of an inspection of the viscera of slaughtered animals. The presence of Hydatids in pigs, and Fluke in sheep's liver—how far necessary to condemn.

Now, apart from animals killed by butchers, there is a large quantity of meat prepared for food in unlicensed premises, and it is necessary to remember that the power of inspection and seizure in these is absolutely nil. I refer, more especially, to two classes of slaughtering—first, the killing of home-fed pigs; and, secondly, to the slaughtering of animals which would otherwise die.

The latter class of cases fall under the notice of the veterinary surgeon, but he is quite powerless in the matter, except in the case of scheduled diseases, while in such instances as Puerperal Apoplexy, Tuberculosis, etc., no one can prevent the removal of the carcase from the premises. I presume that these remarks would apply even more generally in rural districts than in towns. Thirdly, I have understood there are those among you who are not quite so anxious to undertake this work as Professor Walley would have us think.

Professor Walley, who is an enthusiast in these matters, and who is always very ready to point out to us how much better these things are done across the border, seems to think that no meat inspection at all is done in most English towns, and in his zeal for the honourable profession of veterinary surgeons, suggests that the medical officer of health should be entirely superseded. From this view I must venture to dissent entirely.

I recognise to the full the value of expert assistance and advice, but I must advance a few reasons to justify the maintenance of the present paramount position of the medical officer. It is absolutely necessary that the Departments of Public Health of every Local Board should have *one* responsible head, and the inspection of meat being but one of many detailed duties of the department, it should be quite sufficient for the M. O. H., already responsible for the acts of his inspectors, to include this responsibility also.

Further, there is a large number of cases in which no expert opinion is required; the seizure of meat so decomposed as to be unfit for human food is an event which occurs quite as frequently as seizure for disease, and the machinery afforded by the Public Health Act is quite sufficient for such cases.

Now, sir, it appears to me but right, before I leave this portion of my subject, to refer very briefly to the diseases which render condemnation necessary or advisable. On some we are all agreed, while some form the burning questions of the modern comparative pathologist. I will not enter into the tubercle controversy. You have, I believe, only recently discussed it, and the question remains undecided; but there is one point upon which I am not quite clear, and that is, how far you consider it possible to eradicate Tuberculosis? Surely the great factor in the production of Tuberculous animals, whether human or otherwise, is the permission accorded to their Tuberculous parents, especially on the maternal side of breeding at all. I have always thought that if we could prevent our human mothers from breeding, when victims of Tuberculosis, much pain might be saved to their unborn children, and I should be glad to hear any remarks upon the etiology of bovine Phthisis from some of your members, and to learn whether my ideas are hopelessly wrong.

With all due respect to the opinions of others, I still hesitate to believe tha

the eating of the flesh of Tuberculous animals, especially in the early stages, is either as common or as productive of tubercle as is asserted. My own experience has been that the vast majority of tuberculous patients suffer from hereditary causes, and are descended from an ancestry tainted either by Phthisis or Struma.

The condemnation of carcases where there has been Puerperal Apoplexy is another moot point, and here, while my opinion rather leans towards condemnation, I feel that it would be unfair to draw too hard and fast a line.

I pass now to the second portion of my subject—the milk supply. Here, as before, we meet on common ground, only that your position in this case has been better recognised and more clearly defined than in the former.

But if complaint is made of the manner in which meat inspection is conducted, what about our milk supply? In my unfortunate borough, if you want any information about the subject, you must "ask a policeman." This matter, which, even more than the other, affects the health and well-being of the population, seems in many cases (for I believe West Bromwich is not an isolated instance) to have escaped from the control of the medical officer altogether; further than that, it has fallen into the hands of another minister, and is called agriculture.

But while it falls to my duty to ascertain the local conditions of the supply, the drainage, water supply, cleanliness, etc., of the premises which are within my reach, to you is allowed the much more difficult task of deciding whether a cow is fit to give milk for human food, and of preventing her owner from using the milk. We who dwell in towns are at the mercy of chance inspection by men in rural districts, covering an immense area of daily work, and whose sins of omission are only obscurely manifest at the end of a prolonged investigation into the cause of an obscure case of fever fifty miles away. The joint character of our duties in this question of milk supply has been more especially recognised by the most recent sanitary enactment, I mean the Infectious Diseases Prevention Act, 1890. But this joint inspection is only authorised when the M. O. H. is of opinion that one of the infectious disorders mentioned in the Act has arisen from milk supplied on the farm; from the veterinary surgeon point of view I have yet to learn that Small-pox, Typhoid Fever, Ersyipelas or Diphtheria, are ever caused by milk from animals possessing diseases analogous to these.

There remains, therefore, Scarlet Fever; here again the investigations of Mr. Power and Dr. Klein, at Hendon, are regarded as of little account by the Privy Council; no doubt the question of contagion from diseased milk will have to be yet further worked out, and it will be for the professions jointly to collect such evidence as may decide whether or nor diphtheritic throats can be produced from Rinderpest, etc.

It may, however, not be amiss if I very briefly review the classical cases of milk infection.

1. *Hendon.*—Said to be a scarlatinal eruption and ulceration of teats and udder, followed by general skin affection and other visceral diseases, produced Scarlatina.

2. *Willshire.*—Where opinions were divided between true Jennerian Cow-pox (Crookshank) and Suppurative Mastitis (Klein). No Scarlatina traceable.

3. *Edinburgh.*—Contagious ulceration of teats and udder; no constitutional disturbance, produced sore throat and Fever, but no rash or ophthalmic membrane.

4. *Dundee.*—Teat eruption, no constitutional disturbance, said to have caused Typhoid.

In the face of this extremely negative evidence, it would, I think, be rash to jump at conclusions. That milk from unhealthy cows may cause Diarrhœa we

all know; and many of us may be opinion that the milk of tuberculous cows is not fit for human consumption, but so far neither of these facts is recognised by the legislature.

Four years ago sanitarians congratulated themselves that at last some good would be done in the direction of efficient milk inspection—the machinery undoubtedly exists, and it is for us to see that it is oiled and used.

What, then, are the points to which legislation should be directed?

1. The compulsory provision of public abattoirs in all towns exceeding a certain population.

2. Failing that; power to remove slaughter-houses from the register when improperly situated too near a dwelling, bad access, etc., etc. No compensation to be given for removal if a public abattoir is provided. All disused slaughter-houses to be removed from the register at six months' notice.

3. Compulsory appointment of veterinary inspectors as experts for reference, not as inspectors in the first instance, but as referees when needed, alternative to, or in conjunction with the M. O. H.

4. Recognition of tubercle as rending meet unfit.

5. Power to seize and destroy tubercular carcases.

6. Efficient working of the D. C. S. and inspector's order.

7. Compulsory isolation of sick cows.

My essay would be incomplete without some reference to the relationship between us upon the broader lines of the comparative study of disease. Questions of the communicability of Phthisis by pet animals, of the contagiousness of tubercle, of the transmission of Diphtheria by cats, and of the simultaneous invasion of men and animals by the recent Influenza, all form the basis of a common ground upon which the two professions may meet in scientific fellowship. I feel certain that the further my colleagues go in the study of comparative pathology the more they will appreciate the good friendship of those who labour in the same microscopic field, though with a different purpose.

No one is more conscious than myself of the many shortcomings of this paper. I feel that in more than one place much that I have said has been said already, and much might have been said better than I have said it. My object has been, to the best of my ability, to call your attention to some of the work which lies before both of our professions—sanitation has done much in the last fifteen years—much remains to be done. Reforms can be only initiated and carried by united action, backed by individual effort, and I can imagine no better ground on which we can meet than the desire to improve the condition of those around us.

At the conclusion of the paper Dr. Manley was warmly applauded.

Discussion.

Mr. ROSSELL commenced the discussion by asking a question on the subject of Parturient Apoplexy. He wanted to know at what stage of the complaint Dr. Manley would draw the line in the matter of the food being fit for consumption.

Mr. MERRICK said that was a very interesting question to him, for in the County of Northampton he had a large number of cases, a great majority of the animals being in good condition. If a cow was in full condition, and he found, on going to see her, that she had Parturient Apoplexy, he gave it as his advice to cut her throat to save her life. He had seen cases in which he would not have hesitated in eating any portion of the meat. He thought it was only prejudice. He might mention one thing, however, that when he advised the slaughtering of the animal for sale, it was only when he had not previously administered medicine.

Mr. TRIGGER thought the paper they had heard read afforded them much

food for reflection. With regard to tuberculous animals, he quite agreed with the Doctor that there were many tuberculous animals that might be eaten with impunity. If ill-effects were produced at all by taking tuberculous meat, it would be by constantly feeding on it. He did not mean to say that an animal in an advanced state of Tuberculosis should go into the market. With regard to home-fed pigs, about which the Doctor had spoken, he sent Professor Penberthy a tuberculous spleen of a pig which had been slaughtered, and which, by the way, the Professor had preserved in the College Museum. It was a splendid specimen, and an examination of the pig revealed the fact that the muscles down each side of the spinal column were one mass of tubercle. The query was whether they should eat the pig or sell it. His advice was not to eat it, but what became of it he could not tell. He believed it eventually found its way into the market. With regard to the inspection of meat, he ventured to disagree with Dr. Manley. He thought it should be taken out of the hands of the medical officer altogether, and placed in the hands of the veterinary surgeons. He did not think the veterinary surgeon should be subordinate to the doctor. They should act together in the inspection of meat. The doctor might act in the case of decomposed meat, but when it came to a question of disease, the veterinary surgeon ought to be consulted. He did not say so out of any feeling in the matter, because in his own town that very course was pursued by special instructions from the magistrates. With regard to hereditary diseases, the Doctor had laid much stress upon the heredity of mothers. He should have laid equal stress upon the heredity of fathers. He quoted an instance that had come under his own knowledge, in which Tuberculosis had been found in pigs, distinctly attributable to their sire. With regard to Parturient Apoplexy, he had little hesitation about passing animals thus afflicted into the market. He did not like the idea of eating it himself, but he had come to the conclusion that unless he had known anything about the beast before its death, he would have found out nothing afterwards. He saw nothing to prevent meat suffering from Parturient Apoplexy going into the market. The question was asked, and very rightly too, as to where they should draw the line. He himself did not know where they could. He had suspected cases, where the animal had actually died of the disease, being dressed for market, whilst he had seen cows killed at a time when it would have been impossible to say how much longer they would have lived, but he had never known any ill-effects arise from eating the meat. He did not advocate the passing of that meat into the market in such an advanced stage. He did not think there could be any ill effects, unless the animal had had a quantity of medicine before its death, in which case it might produce nausea. On the question of the supply of milk, he should have more hesitation in regularly drinking milk from tuberculous cows than in casually eating tuberculous meat. He always had his milk boiled before drinking it.

Capt. RUSSELL said he had derived considerable knowledge from the paper Dr. Manley had just read. He might mention, for the information of those gentlemen present who were not already acquainted with the fact, that in some portion of the Health Act, it was stipulated that no carcase of any animal slaughtered within one week of parturition should be sold as food for man. As regarded Tuberculosis, he had no hesitation in saying that thousands of children were killed every year through drinking milk of tuberculous cows.

Mr. MERRICK asked the previous speaker his opinion as to whether meat was good or not when killed within seven days of parturition.

Capt. RUSSELL replied that he could honestly say that he had never known or heard of any effects arising through such meat being eaten, although he had no doubt it was constantly being placed in the market. In fact, he would not take his oath that he had not eaten some of it himself.

Mr. BRETT thought that in 75 cases out of every 100, the milk was contaminated after it left the cow. He thought the medical officer and the veterinary surgeon should act together, and the veterinary officer appointed should have no practice, so that he never need fear giving offence to his clients. If their clients were affected, they could not help taking a lenient view.

Mr. MERRICK said he should be very sorry to see a veterinary surgeon go to his town as an official without being allowed to practice.

Professor PENBERTHY said they could not over-rate the importance of the subject under discussion. They had had a very bold admission from Dr. Manley, that his profession was not educated up to carrying out all the duties that were at the present time imposed upon it. From his knowledge of almost all medical schools, his opinion was the same. He held that the medical profession was not fit to hold control in certain matters, for the public only naturally looked for advice to those persons who were intimately acquainted with the nature of the disease, and if it affected animals they would go to their profession rather than to the medical man. They must ask the question of the medical man, has his attention been directed much to the intercommunicability of disease from the lower animals to the higher animals, and to the lower in the study of human medicine? He (the professor) said that the knowledge placed at the disposal of students in the course of veterinary medicine, was such as should be utilized in the public service for the prevention of the spread of diseases which were intercommunicable. The human subject was the chief consideration of the medical practitioner—those of the veterinary surgeon being the lower animals—and the interests of their clients. Still he could not allow for one moment that veterinary surgeons would lend themselves to protect their own clients at the expense of other people, as had been hinted. Veterinary surgeons might hold different views, but when they came to touch upon their moral principles as affected by pecuniary considerations, he could not allow it. There was a tendency for humanity—not veterinary surgeons only—to err on one side, and in his opinion they ought all to work in concert. He thought every local authority, of whatever position, ought to have two officers for the purposes of the contagious Diseases (Animals) Act in such matters as the inspection of meat, etc., a medical officer and a veterinary surgeon. He did not say equally paid officials, because they all knew that the medical officer could earn more guineas than the veterinary surgeon. But let their positions be equal. He thought the veterinary surgeon was the man who should say whether an animal was or was not subject to, or suffering from disease. That the veterinary profession would play a considerable part in that matter in the future, he had little doubt. He was glad to hear Capt. Russell bring forward that matter of the Health Act, of which, he believed, their profession, as a whole, was not aware. It might be, and indeed it had been said that the veterinary surgeon had no *locus standi*, but they were really in a position to legally advise their clients. A question had been asked as to cows dying, or being killed in order to prevent their dying in the natural way from Parturient Apoplexy. He didn't think that because a little blood had slipped out, the carcase was likely to produce any special disease. If he gave a shilling or eighteenpence a pound for beef, he would much prefer that it had not died of Partutient Apoplexy. He thought, if the public were willing to buy such meat, it should be labelled, and they should fine the person so many pounds if he left the label off the carcase. As regarded the milk question, he thought Dr. Manley would allow that milk might produce Tuberculosis without their being able to find any tubercle.

Mr. SMITH said he had had many cases of Parturient Apoplexy, and the great difficulty he found in having such animals killed was for the poor man to get anything for them. The butcher came, and taking advantage of the

condition in which the cow was, struck a very cheap bargain, killed the cow, and made a great profit out of the sale.

Dr. MANLEY, in replying on the discussion, said he was very much obliged to those gentlemen who had spoken on what he had had to say. He was pleased to say he had gleaned some information. He did not know that part of the Public Health Act which Capt. Russell had referred to. With regard to the question of Parturient Apoplexy, so much had been said upon it, that he thought Mr. Rossell's query was already answered. Cases must be judged upon their own merits. The question he always asked was whether the cow had been drenched and "physicked" or not. From the condition of the animal it was very hard to say whether it had really been diseased or not. He thought some of them had a little over-rated what he had said about the veterinary surgeon being subordinate to the medical officer. He did not mean that at all. Mr. Trigger had argued that heredity could be paternal as well as maternal. He (Dr. Manley) merely said "maternal" because in the human subject they attached much importance to heredity on the mother's side. It was the rule with some insurance offices to refuse cases where there was maternal disease, whilst cases where the disease was on the father's side were generally admitted. He could only thank them very much for the very kind reception they had accorded him.

Mr. TRIGGER moved a vote of thanks to Dr. Manley for having so kindly consented to go amongst them and read so able and interesting a paper. He thought they were extremely indebted to him, and they would, on all occasions, have very great pleasure in welcoming among them any member of the medical profession.

The CHAIRMAN seconded, and said he personally tendered his hearty thanks to Dr. Manley. They had on several occasions been honoured by the presence of medical gentlemen who had read them scientific papers and taken part in their discussions. It was very pleasing to find the two professions coming into closer communion one with the other, and he hoped that in the future they would work even more amicably together than they had done in the past.

The vote of thanks was unanimously carried, and amid hearty applause Dr. MANLEY returned thanks. He said he had no more to say, except to repeat his assurance that he was deeply grateful for the kindness that had been extended towards him. So far as he could, he should always endeavour to do his best towards cementing the friendship between the two professions to which they respectively belonged.

Capt. RUSSELL then nominated Dr. Manley an honorary associate of the Society. The nomination was cordially accepted.

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

A QUARTERLY meeting of the Association was held at the "Blackfriars" Hotel, Manchester, on 10th December, 1890. Present: Mr. W. A. Taylor, President; Messrs. Wm. Hunting, P. Taylor, T. Greaves, J. D. Wolstenholme, E. Faulkner, T. Hopkin, P. Moore, A.V.D., W. F. Shore, A. Lawson, S. Locke, W. Dacre, E. C. Edwards, — Carter, E. S. Gubbin, T. Hart, T. Briggs, E. Noar, — Kilsell, H. Ferguson, — Bridge, J. Umson, A. Leather, W. Hall, A. Michaelis. The members sat down to tea at five o'clock, after which the minutes of the last meeting were read and confirmed.

Letters of apology were read from Professors Williams and McCall; Messrs. Henry Thompson, R. Hughes, G. Gartside Mayor, P. Pike, Jos. Abson, T. Leather, W. Whittle, E. Neild-Siddall, and C. W. Elam. A letter resigning his membership was read from Mr. J. S. Hurndall. This was accepted with regret, it being well known that only distance prevented Mr. Hurndall from attending.

Mr. A. LEATHER nominated for membership, Mr. Roberts, M.R.C.V.S., of Liverpool.

The PRESIDENT explained why no action had been taken with respect to the resolution of last meeting—appointing a sub-committee to draw up a resolution on the New Pleuro-pneumonia Act—and it was proposed by Mr. P. Taylor and seconded by Mr. Locke, that no further steps be taken in the matter.

The PRESIDENT then called on Mr. Hunting to read his paper.

THE USE AND VALUE OF POSITION AND ACTION AS INDICATIVE OF LAMENESS.

Mr. HUNTING commenced by a review of the normal position of the horse's limbs when at rest, and of their action during locomotion. He then referred to the various alterations which are noticed in cases of lameness, and asked, what is the value of position and action as indicative of lameness? He concluded that their value was over estimated, and that there were not many lamenesses which could be definitely diagnosed by action alone, nor even by peculiarities in position of the limb. From the general question he passed on to consider in detail the various regional lamenesses, and his conclusions may be shortly summed up as follows:

Shoulder.—The position of the limb and its action does indicate the region affected, but it does not definitely show the seat of injury. Very similar alterations of position and action result from such widely different accidents as sprain of the Flexor Brachii, of the Extensor Brachii, of the Spinata Muscles, or even of the joint. In each of these we have indications suggesting some injury to the region of the shoulder, but the whole of the muscles of the region are so interdependent on each other that failure of one affects all the rest, with the result that the shoulder cannot be raised and the proper angle of its bony elements be maintained.

Elbow.—The excessive dropping of the leg during progression which is noticed in these cases is not diagnostic. It is seen in injuries which often have their seat higher up.

Knee.—The essayist expressed his distinct disbelief in any definite form of action being diagnostic of lameness affecting this joint, unless it was of such degree as to visibly prevent flexion. Digital lameness possessed no special action, and caused no peculiar position of the limb which was not seen in cases affecting other parts. When Ringbone was well developed there was a clear want of motion in the joint which was indicative. He did not think that the difference stated to exist between the movements of a leg affected with Ringbone in front and behind were always noticeable. In the fore limb Ringbone caused the foot to come to the ground heel first, but he had not noticed that in the case of a hind foot so affected, the toe first came to the ground.

Hip.—Lameness of this region, it was pointed out, was common enough in cases of fracture which, when accompanied by no displacement, ought to show a definite action if such ever existed. There is certainly something almost indicative in the action of hip lameness, but the same condition—the limb being carried all in a piece—is seen in some acute foot lameness. Mr. Hunting characterised such action as well described by a horsey man who was looking at a case of lameness, when he said, "Well, he's lame at one end or the other." We can only get about as far as this by action alone—we can suspect either foot or hip, and then must resort to close local inspection to determine the exact seat.

Stifle.—Here is a joint, said the essayist, which can by no possibility give rise to diagnostic action by any diseased condition. Any peculiarity of movement of the hind leg which alters the motion of the stifle must also alter the

action of the hock. Both hock and stifle must move together, as the bones which form them are so connected by tendons and ligaments as to retain always a similar relation. Flexion of hock must be accompanied by flexion of stifle, and the amount of flexion is always equal in both joints.

When any of the connecting structures are divided or paralysed, then we have very remarkable movements of the limb which are truly diagnostic of the lesion—as, for instance, in rupture of the gastrocnemius muscle, or of the flexor metatarsi.

Hock.—Many men profess to diagnose hock lameness by the action, and they are very often right, but there is no definite action peculiar to a lame hock. As far as motion goes it might be the stifle, but as in ninety cases out of a hundred the stifle is not affected, it is a fair practical guess to say it is the hock. But even putting aside the stifle as a source of error in diagnosing hock action, Mr. Hunting seems inclined to doubt whether movements of the hind leg could be depended on as indicating the region affected, and he related two cases of injury to the pedal bones which had been credited to the hock until a *post-mortem* examination revealed the true seat of lameness.

The Foot.—This region it was allowed with qualifications, did give some indication by its position or movement of lameness affecting its structures. The position of "pointing" was indicative of foot lameness, and there was a peculiarity more easily detected than described, which enabled some men to very positively locate the lameness to the foot—more especially in the fore-limb.

DISCUSSION.

Mr. DACRE opened the discussion by exhibiting a morbid specimen showing the effect of a puncture on the fetlock joint. Some pointed object had entered behind the fetlock joint of a fore leg and set up acute inflammation. As a rule, pain in a joint resulted in flexion, but in this case the horse seemed to be in least pain when the foot was firm and square on the ground in its normal position. Motion was accompanied by great pain.

Mr. PETER TAYLOR discussed the various lamenesses, and gave a general support to the statement that action was not of itself very indicative of the seat of lameness. He said the longer he lived the less positive he became in his diagnosis, and he recognised that very often the most expert practitioner might see a lame horse whose action taught nothing, either as to the seat or nature of the injury. He impressed the necessity of examining the foot carefully in all cases. As to the statement that 80 per cent. of fore-leg lameness was in the foot, he was not prepared to admit it, except with the important qualification of age—it held in aged but not in young horses. He considered the hock-lamenesses were the most difficult subjects in the whole list. Not only could action not be depended on as diagnostic, but even the structural changes and local signs were not always to be relied upon, as was shown by the very diverse opinions expressed by different men on the same case.

Mr. THOS. GREAVES said that in elbow lameness he looked upon one peculiarity as diagnostic, viz., that the animal could not back, and when compelled to do so the limb was dragged. He had hoped to hear more on the subject of bent fore-legs in cab and 'bus horses, which he suggested were due to atrophy of muscle.

Mr. EDWARDS said time would not permit him to go through the long list of lamenesses, but he should like to mention a condition which, in his experience, was an instance of a specific motion indicative of lameness in a certain part. In cases of injury to the hind foot, the animal moved with a long step—the foot being placed far under the body.

Mr. FAULKNER expressed his general agreement with the conclusions of the paper.

Mr. WOLSTENHOLME discussed the question of "bent leg."

Mr. BRIGGS agreed with Mr. Greaves that the inability of the horse to back was very indicative of elbow lameness. In reference to the cases of "dropped" shoulder he believed many of them were due to sprain of the *serratus magnus*.

Mr. MOORE also spoke, and related cases which had come under his notice in the Army Veterinary Department.

Mr. HART said he thought he had noticed a peculiarity in the mode of moving the limb in Ringbone—the heel was raised from the ground preliminary to moving the foot. When Ringbone affected the hind leg the foot was extended, but just before being placed on the ground was retracted a little. This movement he thought special to Ringbone.

Mr. LOCKE, in the course of his remarks, referred to the peculiarity of action in painful lameness of the foot. The foot no sooner touched the ground than it was removed with a sharp upward lift indicative of pain.

Mr. HOPKIN related some cases of injury to the shoulder caused by horses falling in the shafts. On the animals being raised the limb was found powerless, the shoulder "dropped," as in cases of muscle-sprain, but recovery was rapid—so rapid that the lesion could not have been one of serious structural injury. He thonght the cause was pressure of the shaft on the elbow as the animal lay on the ground. In elbow lameness he certainly had seen the horse stand with the foot of the injured limb behind the level of the sound one. As to hind leg lameness he was not prepared to accept Mr. Hunting's statement that hock and stifle must always act together. He thought he had seen cases in which these joints acted so independently of each other as to allow a decidedly altered motion of one of them.

Mr. ALEX. LAWSON related a case of Carpitis, in which the action of the joint clearly indicated the seat of lameness. In all cases of lameness which were not evidently due to some visible injury, he agreed with Mr. Taylor that we should examine the foot. As to hock lameness, some were very easy, because we had definite local changes, as well as the action of the lame animal to guide us, but there were other cases in which there was nothing to be seen, but which were undoubtedly due to changes in the joint. In such cases the absence of other disease or injury was, in conjunction with the action, our sole guide to diagnosis.

Mr. HUNTING, in reply, said he had first to thank the members for the patient hearing they had given him, and next for the very interesting discussion they had raised. He had hoped to elicit from their practical experience some observations which would assist them all in diagnosis, and he was glad to have heard two or three which he should test at the earliest moment. Mr. Edwards had mentioned the long step taken by a horse with an injured hind foot; Mr. Briggs and Mr. Greaves both referred to the difficulty of backing a horse with elbow lameness; Mr. Hart noted a peculiarity in movement of the foot in Ringbone; and Mr. Locke the snatch of a foot from the ground when that organ suffered from a painful injury. All these were matters which deserved attention, and perhaps there were still other little matters of a similar kind which would be brought to mind by this discussion. Mr. Briggs had suggested sprain of the *serratus magnus* muscle as the cause of many of the "dropped" shoulder cases. This was new to him, and seemed so likely to be correct that he should not forget to verify it whenever he got the chance. Mr. Greaves and Mr. Wolstenholme had referred to "bent-legs." Had time permitted he should have liked to enter more into this question. His own belief was that nearly all the cases were traceable to tenderness in the feet, and that it always came about by passive shortening of the tendons. Some cases might be due to the extensor muscles not having tone enough to keep the bones in their proper vertical position, but most were due to the horse voluntarily relaxing his muscles and allowing the

knee to go forward as a position in which painful feet were the least painful. The tendons then shortened to adapt themselves to the altered angles of the bones. Tired extensor muscles and tenderness in the feet were the chief causes of bent legs. In reply to Mr. Hopkin's remark, that he thought he had seen cases where the hock and stifle joints did not move in exact unison, he could only say that when that happened there must have been some defect in the connecting structures. In support of the practical axiom—always examine the foot. Professor Dick's name had been mentioned, and an old tale retold of his wonderful skill in diagnosing foot injury in addition to other and more patent lesions. Mr. Hunting said he was willing to allow Professor Dick very great acuteness, but he could not allow that a happy guess should be accepted as a sort of intuitive talent. It did much harm to inculcate the idea that lameness was diagnosed by some practitioners with preternatural sharpness, and that their diagnosis was founded on real observation and quick deduction. We all make mistakes, we are all very often puzzled, and if we do not confess our ignorance we should not confuse the issue by classing together lucky guesses and careful diagnoses. It is the man who knows most and sees clearest that most frequently feels that his opinion on a case of lameness is not too surely founded.

A cordial vote of thanks was accorded Mr. Hunting for his very able and instructive paper.

The following office-bearers were elected for the ensuing year: President, Mr. A. Leather; Vice-Presidents, Messrs. Hugh Ferguson and A. Michaelis; Treasurer, Mr. Tedbar Hopkin; Secretary, Mr. G. Gartside Mayor; Auditors, Messrs. John and Alex. Lawson.

A hearty vote of thanks to the retiring Chairman concluded the meeting.

W. F. SHORE, M.R.C.V.S., *Sec., pro tem.*

BORDER COUNTIES VETERINARY MEDICAL SOCIETY.

A GENERAL meeting of this society was held at the Bush Hotel, Carlisle, on the 17th December. Mr. T. Greaves, of Manchester, the President, was in the chair, and there were also present—Dr. Fleming, Messrs. Carlisle, Bell, Dawson, and McKie, Carlisle; Coats, Brampton; Tallentire, Skelton; Pender, Lockerbie; Donald, Wigton; Chalmers, Annan; Crondace, Haltwhistle; Young, Cockermouth; Little, Abbey Town; Howe, Keswick; Toughear, High Hesket; Bell, Haltwhistle; Soulsby, Workington; Bell, Brampton; Thompson (hon. treasurer), Aspatria; Armstrong (hon. secretary), Penrith. Messrs. Anderson, Hexham; Robertson, Gowan, and King were present as visitors.

The SECRETARY intimated that he had received letters apologising for their absence from several members.

The SECRETARY intimated that at the next meeting he should move the election of Mr. Rimmer, of Kendal, as a member of the society.

Mr. YOUNG proposed that Mr. Jacob Howe, one of their oldest members, and best attenders at their meetings, be elected President of the Society for the ensuing year.—Mr. DONALD seconded the motion. No one else being nominated for the office, the CHAIRMAN said it gave him very great pleasure to declare that Mr. Howe had been unanimously elected President of the Society. (Applause.)

Mr. HOWE briefly thanked the members, and said he should try to do what he could to further the interests of the Society. (Applause.)

On the motion of Mr. DONALD, Mr. Greaves, the retiring President, and Mr. Soulsby were appointed the Vice-Presidents of the Society.

The CHAIRMAN, in moving the re-election of Mr. Armstrong as Secretary,

and of Mr. Thompson as Treasurer, said he could not speak too highly of the business-like habits of Mr. Armstrong, and of the careful manner in which Mr. Thompson looked after the funds of the Society.—Mr. SOULSBY seconded the motion, which was carried unanimously.

Mr. DONALD gave notice that at the next meeting of the Society he should move the following resolutions:—

(1) That this Society disapprove of members of the Council holding the dual office of Councilmen and Examiners.

(2) That this Society disapprove of the 9th Clause, and request the Council of the R.C.V.S. to take immediate steps to obtain its repeal or alteration, so as to restore to members of the R.C.V.S. their original rights.

Dr. FLEMING, who was received with applause, then read a paper on "Influenza in Horses."

(The paper appeared in the VETERINARY JOURNAL of last month).

The CHAIRMAN, in inviting discussion on the paper, said the subject was a most important one, and it behoved the members of the profession to learn how to treat this disease and stamp it out. They were scarcely ever free from Influenza in Manchester, and at the present time it was prevailing to a very large extent. The appearances were simply drooping of the eyelids, swelling of the limbs, stiffness, and a fevered pulse reaching sometimes to 96. The majority of the cases got better, unless there was some old-standing disease; perhaps not more than one in twenty or one in thirty terminated fatally. As to treatment, good nursing was essential. He used hay tea largely, and in cases where the horse was very low, mild stimulants. In every case care should be taken to keep the stable healthy, and if that was done they would find that the majority of the cases would do well. As to the cause of the disease, it might be a microbe, or it might be simply a subtle poison in the air; but he hoped the time was not far distant when an antidote would be found which would eradicate the disease.

Mr. THOMPSON said they had not many cases of Influenza in this part of the country. He had, however, seen seven cases of what was called "pink-eye" within the last month, and the symptoms were identical with those described by Mr. Greaves. One of the cases was at Westnewton and another at Aspatria, and it was found that about a week before horses had been brought into those stables from a stable in Carlisle where "pink-eye" or Influenza was prevalent. The disease had been carried about the country by the animals themselves in actual contact. Good nursing and plenty of fresh air were necessary in the treatment of cases of Influenza, and as to medicine he gave carbonate of ammonia (in the lower stages) or chlorate of potash.

In reply to the Chairman, Mr. THOMPSON said that he had never seen purging in a horse produced by giving it carbonate of ammonia, provided it had not had purgative medicine before.

Mr. YOUNG said he could bear Mr. Thompson out as to the beneficial use of carbonate of ammonia.

Mr. DAWSON said they had had a number of cases of Influenza in Carlisle of the type known as "pink-eye." With regard to treatment, he thought that advocated by Dr. Fleming was the best. He was a great believer in fresh air and good nursing, with moderate counter-irritation, such as that produced by mustard or fomentations with hot water. He fomented the chest, both sides, and the front of the animal. Blankets were tied all round it, and the hot water was poured on to the blankets and allowed to soak through. The mustard was also applied to the chest.

The CHAIRMAN said Dr. Fleming was desirous of eliciting opinions as to the different forms of Influenza. In Manchester they had had it, at one time or another, in all the three forms mentioned by the doctor. His advice to

them was not to use any external applications unless the breathing was accelerated. One of the most interesting questions raised by the paper was as to whether the disease was contagious or whether it was attributable to some virus which existed in the atmosphere. Amongst the cases which he had attended were four or five horses at a certain hall about nine miles from Manchester. These horses had not been where there was any disease, but still they became infected. Six or seven miles on the opposite side of Manchester they had seven or eight horses suffering from the disease, which did not come into Manchester or mix with other horses. These cases supported him in his opinion that the disease was not contagious. Over and over again he had taken his own horses into stables where the disease existed, and they had not become infected.

Mr. BELL, of Carlisle, said that in that district they had opportunities of seeing the disease in its various forms. The dealers' horses which came from Ireland were very susceptible to the disease in the form first described by Dr. Fleming—the discharge from the nose. Horses which had arrived in the town in railway boxes were frequently found to have the disease, and from that he was led to believe that these boxes were a means of conveying it, and, hence, that it was infectious. He agreed with Dr. Fleming, that the less that was done to animals which were suffering from the milder form of Influenza the better. He did not as a rule order external applications, even if there was disturbance of the breathing; and he never gave stimulants. In his opinion the horse-boxes on railways were the means of conveying a great amount of disease. They could have cattle trucks disinfected every time they were used, and he asked why that could not be done with regard to horse-boxes, in which animals of much greater value were conveyed. He thought it was time that, in the interests of their clients, railway companies should disinfect horse-boxes after they had been used.

Mr. ANDERSON expressed surprise that no practitioners from Newcastle were present, as the disease was very prevalent there. Some years ago he had many cases under his care, and he found then that if he could get the kidneys to act fairly at first, the animals generally recovered. In some cases the kidneys were found to be petrified. As to whether the disease was communicable from man to the horse, or from the horse to man, he might say that whole families were laid up with Influenza in his district last year, but there was not a single case amongst the horses. In his opinion the disease was spread by a microbe; and with regard to its different forms, he had had experience of what he might term a rheumatic form.

Mr. HOWE said that as far as he knew there had been no cases of the disease in the Keswick district. Many of the Irish horses of which Mr. Bell had spoke had had coughs, but there were no appearances that they were suffering from Influenza.

Mr. SOULSBY said he had had many cases of Influenza recently, and, as regards the majority, he found that they differed from each other. In some cases the disease had extended no farther than the throat; in others, it was all over the body, and again, other cases were of the rheumatic nature, of which Mr. Anderson had spoken. In most instances he had been troubled by the costiveness of the animal. As to whether the disease was infectious or not, he might say that some horses which had lately been brought from Edinburgh, and which were all coughing, were (against his advice) sent down a pit where there were fifty other horses, and yet none of these others had taken it. It was not the first time that horses suffering from coughing had been sent down a pit, and still none of the other horses in the pit had taken it. Counter-irritants, he found, did more harm than good, but he was a great believer in diffusible stimulants.

Mr. DONALD said that his experience was that they could not lay down

any particular line of treatment for Influenza. In every case they should rely upon good nursing and plenty of fresh air, and treat complications as they arose, and he thought that those who adopted the most conservative principles of treatment would be the most successful. One almost felt ashamed to question anything which Dr. Fleming said, but he really did not think that there was any positive evidence that Influenza was due to a microbe. He believed it was a fault of the pathology of the present day to attribute everything to microbes. He should like to know by whom the microbe of Influenza had been cultivated, as he had not read of it. There was not a tittle of positive evidence to show that the disease was due to a microbe.

Dr. FLEMING: Will you kindly give us your opinion as to what is the cause of it?

Mr. DONALD: I have not formed any opinion yet, but although I am convinced that it is contagious, I do not see anything to show that it is caused by a microbe.

Mr. THOMPSON asked how the President accounted for the disease passing through the stables in Manchester if it was not contagious or infectious?

The CHAIRMAN said that his opinion, based on an experience of over fifty-six years, was that Influenza was not infectious. He believed it was due to a subtle poison in the atmosphere, to which one horse was more susceptible than another. It might be that this subtle poison was a germ, and he should not be surprised, as science gave them more knowledge, that a microbe would be found to be at the bottom of it. As to external applications, he was strongly against the use of them.

Mr. BELL, of Carlisle, said he could give hundreds of instances where a single animal, coming from a district where the disease existed, had brought disease into a district where it had not previously existed. Did not that prove conclusively that the disease was infectious?

The CHAIRMAN said that the cases cited by Mr. Bell would be of value if he could prove that the horses would not have become affected if the imported horses had not been placed amongst them.

Mr. BELL: How does it come that the disease frequently confines itself to one yard? The same atmospheric influence is at work over all the district as in that yard.

The CHAIRMAN: Very likely the stables are more unhealthy than the other stables. He mentioned a case in the Manchester Corporation stables to bear this out.

Dr. FLEMING asked for an expression of opinion as to whether the disease could be transmitted from the horse to man or from man to the horse.

Mr. HOWE said they had a number of cases of Influenza in the human species in his district, but no cases of it in animals.

Mr. DONALD and Mr. THOMPSON expressed the opinion that the disease was not transmissible.

Mr. ANDERSON said many dogs near Hexham were affected with a disease closely resembling Influenza, and he should like to hear an opinion as to whether or not it was Influenza from which they were suffering.

Mr. PENDER then said: I have no doubt that the ordinary form of Influenza which spreads through districts after fairs is contagious; although there may be many instances of non-susceptibility, owing to the nature and condition peculiar to the animal or animals affected, as well as of those which have been in contact with diseased animals without becoming infected. With regard to that peculiar form of Influenza called "Pink-eye," I may say that living in a purely agricultural and pastoral district, I have no experience of the disease in an epizoötic form, although I have frequently, in certain seasons and

atmospheric conditions, seen horses showing all the symptoms characteristic of the disease, which have been fully and clearly described here to-day by Dr. Fleming and Mr. Greaves. From all that I can make out, this seems to be a disease which in this country, horses in seaport, or manufacturing towns, or large towns near some considerable river, are peculiarly liable to, especially in certain seasons and atmospheric conditions. Some towns, I understand, are rarely, if ever, entirely free from the disease in one form or other. Now, as to the disease being contagious, it appears to me that if it be so in the proper sense of the term, there are at the same time many instances where affected animals do not transmit the disease to others they have been in contact with. But, I should say, that in this disease, as in many others, all that is wanted to render it transmissible to others are certain conditions inimical to the health of the animal, by which certain changes are effected on certain matter in the body, rendering it poisonous to the animal in which such changes are effected, and generally to those of its kind, but at the same time a natural food for a certain organism. "Where the carcase is, there will the eagles be gathered." To my mind, those organisms which most scientists of the present day tell us are the cause of this or that disease, play a most important function in the animal world as Nature's scavengers; and, just as in some dirty towns in certain parts of this planet, there are dogs, vultures, and other animals which do the most of scavenger work, removing carrion and other filth from the streets, etc., so do those small organisms remove the filth from the streets and alleys, creeks, and hidden parts of larger organisms. But what is an organism? It has oftentimes struck me as most remarkable that we should be supplied daily with so much information about the great devastations caused by those mighty invaders—microbes—for so many years, and no one has thought it necessary to give anything like a satisfactory definition of what an organism is. I cannot account for it in any way, except it be owing to what I believe to be a fact, that most of the scientists of the present day are rather too materialistic. They seem to put no reliance on information obtained through the conceptive, imaginative, and calculative qualities of the human mind, and can hardly believe in the existence of anything which they have not become cognisant of through those senses common to animals. What then is an organism, or, rather, what is a healthy living organism? I would define it thus. A healthy living organism is matter in a certain condition adapted to the nature and constituting the embodiment of an imperceptible, immaterial, indestructible vital entity, having individual characteristic property and function, all vital processes and action being governed and regulated by the fixed laws of affinity and adaptation. I therefore conclude that if our domesticated animals were treated somewhat more nearly in accordance with their nature and requirements in order to maintain them in a healthy condition—and this applied also to man—we would soon hear much less about contagious diseases in man and beast.

Dr. FLEMING, in reply upon the discussion, said the evidence was strongly in favour of the opinion that Influenza was infectious, and he maintained that all diseases which are transmissible from the sick to the healthy are due to a microbe. In no other way could they explain the production of these diseases. The germ theory explained the infection, the cause and termination, and the spread of the malady, and by no other theory could they explain the whole of these things. With regard to the transmissibility of this disease from man to the horse and from the horse to man, he had pointed out the coincidence of certain outbreaks in man and in the horse; but these must have been mere coincidences. The germs are undoubtedly closely allied, but one would not live in the horse, and the other would not live in man. As to dogs, he thought that if they could be influenced by anything which was in

the air during an epidemic of Influenza, surely they would have had the large kennels throughout the country affected; but such was not the case. With reference to treatment, he thought that there were more horses killed by over-treatment than by under-treatment. His belief was that the best thing to do was to get the animal into as healthy a stable as possible, nurse it carefully, and abstain from irritating it. If drugs were used, let them be drugs which were known to have specific effects.

The CHAIRMAN moved a hearty vote of thanks to Dr. Fleming for the very able paper which he had read to them.

Mr. BELL, in seconding the motion, gave notice that at the next meeting he should move the election of Dr. Fleming as an honorary member of the Society.

The motion was carried with applause, and was briefly acknowledged by Dr. Fleming.

A vote of thanks to the Chairman, on the motion of Mr. DONALD, seconded by Mr. THOMPSON, brought the meeting to a close.

After the meeting the members present and a few friends (including the Mayor and ex-Mayor of Carlisle) dined with the President, Mr. Greaves. Dinner over, the usual loyal and complimentary toasts were duly honoured. Several songs were sung by Messrs. Thompson and Anderson, and a very pleasant social evening was spent.

JOHN ARMSTRONG,
Hon. Secretary.

SOUTH DURHAM AND NORTH YORKSHIRE VETERINARY MEDICAL ASSOCIATION.

A MEETING of this Association was held at the North-Eastern Hotel, Darlington, on December 12th, 1890. In the absence of the President, Mr. Nettleton was voted to the chair; there were also present Messrs. F. R. Stevens, Darlington; A. Peele, West Hartlepool; W. E. Lawrence, Stockton-on-Tees; T. Bowhill, Darlington; and the Secretary. Apologies for non-attendance were received from Messrs. G. T. Pickering, York; H. Gelsthorpe, Darlington; and W. J. Briggs, Darlington.

Letters were read from Dr. Hutchinson and Dr. McCullagh, of Bishop Auckland, thanking the members for their election as honorary associates.

Mr. PEELE related an interesting case of Traumatic Pericarditis produced by a large steel nail which he showed.

Mr. AWDE gave the history of a case of Gangrene, supervening on Parturient Fever in the cow.

Mr. NETTLETON related the course of procedure under the New Pleuro-Pneumonia Slaughter Order, he having had recent experience of it.

Messrs. Percival Snaith, M.R.C.V.S., Bishop Auckland, and Thomas Rickaby, M.R.C.V.S., Guisboro', were elected members of the Association. Mr. H. H. Roberts, M.R.C.V.S., Coundon, was nominated for membership, also Professors Axe, Walley, Williams, and Thomas Greaves as honorary associates.

A resolution from the North of England Association, asking this Association to meet them once a year at some time and place to be mutually agreed on, was next considered, and a Committee appointed to confer with them as to its feasibility or otherwise.

Mr. NETTLETON then introduced a discussion on "A New Charter; Is it Needed?" by reading the following paper setting forth his views on the subject:—

Mr. PRESIDENT AND GENTLEMEN,—Our journals of late have been overflowing with opinions as to whether a New Charter is necessary for the better government of our profession or not, and my apology for writing

on the same subject is that nearly all are on one side, and those who differ from the majority do not take the same views in the matter as myself. Mr. Hunting says "that New Charters are no novelty, as we have three precedents, and it only remains to be shown that another Charter would be advantageous to demonstrate the necessity and expediency of applying for it. Unless it can be clearly shown that a necessity does exist for a New Charter it would be useless to take any steps towards obtaining it."

Now, I maintain that we cannot show any necessity. What argument can we bring forward? Practically none. The Ninth Clause argument is supposed to be the best, but when the Fellowship is open to every member who cares to take it, this argument would soon break down. Now, just consider how many men the repeal of this Clause would benefit. I assert it would not benefit more than a dozen in the same number of years. Then, are we, as a body, to spend a large sum of money merely for the good of so small a number as this? I think we should be very foolish to do so.

Then take the Vice-Presidents and the dual appointments; the objections to those exist mostly in imagination, I will therefore not argue those objections with you, but simply confine myself to the Ninth Clause. Now, we will take the profession as it stood in the year 1875. We then had two qualifying bodies, viz., the Royal College of Veterinary Surgeons and the Highland and Agricultural Society of Scotland. In the year 1879 the Highland Agricultural Society of Scotland's Examinations were done away with, on the understanding that its members should become members of the Royal College without examination, providing they paid the usual fee which most of them did. This, certainly, was not fair to the members of our College; but I suppose it was the only way out of a difficulty, and I believe very few took exception to it. When I say it was not fair, do not think, for one moment, that the Highland and Agricultural Society's Examination was a mere sham—far from it. Having been examined by both bodies I can testify to the two examinations being pretty nearly equal; in fact, I have known men rejected for this examination who have passed the Royal College Examination the next day. In the year 1883 a Charter was applied for which was to do great things for us, but unfortunately in the Bill passing through Parliament it had to be so altered that it was—so far as the then existing members were concerned—shorn of most of its beauty. We then had to take in another class of men, the so-called existing practitioners. It may be said, and correctly so, that those men have nothing to do with the profession—no more they have—but we were compelled to recognise them by placing their names on the Register, and to allow them to follow their calling. I contend this was a great hardship; but, again, the only way out of a difficulty. Those are two cases where the old members have suffered, more or less, for the benefit of the younger ones. So much for the benefiting, at our own expense, three classes of men—the Highland and Agricultural Society's men, the non-qualified men, and the junior members of the profession. Had this been all, I am sure we, as a professional body, would not have grumbled. But previous to those two Acts passing, the Fellowship degree was created. Well, gentlemen, we all know that the majority of the Fellows were practically self-elected—they simply paid their fee but passed no examination of any kind; and those who have passed since are miserably small in numbers compared with the size of the profession, and the Ninth Clause has failed to coerce them to it. Men who have been in practice for a number of years strongly object to again become school-boys. I believe I am correct when I say that under fifty have offered themselves for this coveted degree, which is a very small number indeed compared with the numbers that are eligible for Fellowship. My remarks respecting the Fellows do not apply to those who have passed the examination for that degree. What I propose to do is, to allow every man who was a member

previous to the passing of the Fellowship Charter to be allowed to become a Fellow without examination, providing he pays the usual fee, but if this could not legally be done, he should be admitted on passing a formal practical examination. For I contend that he is as much entitled to the degree as the man who first became a Fellow. Now that a number of years have elapsed since the Fellowship was first created, it could very well be done without any hardship to anyone. The only men likely to grumble would be the small number who have passed the examination, and their hardship would be less by far than on the present old member. The members who have passed since 1876 can have no grievance, as they were not in existence at that time. I must here confess that I should look a long time at £15 before I parted with it for the Fellowship. But this goes for nothing, as there are men of a far more ambitious nature than I am, who would give twice that amount for it, providing they could escape the ordeal of an examination—good men too. There are now about 1,500 members on the Register who passed previous to 1876. Now, for argument's sake, say only 500 came forward, this would mean something like £7,500 to the College fund; a nice sum which the College could afford to set apart for research, which would be very different from the miserable £250 which it is now offering for this very important object.

Gentlemen, I have given you my ideas on the subject in a few very brief words, which, I trust, will convey my meaning, and shall be very pleased to have your views on the matter.

A good discussion followed, the general feeling seemed to be that the time had arrived for a New Charter to be obtained. One member suggested, with regard to the dual appointment, that if a member of Council was elected to any position of profit, he should resign his seat, and offer himself for re-election by the profession.

A vote of thanks was then accorded Mr. Nettleton for his paper.

The SECRETARY reported that he had seen a certificate signed by a non-qualified man with the letters M.C.V.S. after his name, and asked that a Committee be appointed in order to consider such cases of infringement of the Veterinary Surgeon's Act, and if the Registration Committee declined to prosecute that they should take the matter up. The whole of the Association was appointed a Committee for such purpose. The Secretary promised to secure the certificate if possible.

Mr. NETTLETON was under the impression that, as is done by the Society of Apothecaries, all that was necessary was to sue the offender in the County Court for the sum of £20, being the penalty incurred by infringement of the Act.

A vote of thanks to the Chairman closed the proceedings.

W. AWDE, *Hon. Sec.*

ONTARIO VETERINARY COLLEGE.

THE opening of the Ontario Veterinary College took place on October 22nd. Many students presented themselves for admittance, and the classes are very large for this session.

On the day spoken of, Dr. Duncan, in the absence of Professor Smith, read the opening address. The history of Veterinary Medicine and Surgery was briefly given, showing the steady upward progress of these sciences. The rapid progress and great success of the Ontario College was spoken of, as well as the services rendered to the cause of Veterinary Education by the other Colleges of the continent. A special meed of praise was awarded to the Dick Veterinary College, which had sent out so many able graduates.

Since the opening, the work of the Session has gone on as successfully as

usual. Just before Christmas the usual examinations were held, when a large number succeeded in graduating.

During the holidays, so anxious are many for improvement, that about 200 students remained in the city especially to work in the dissecting room. Where students show such a desire to work, and such enthusiasm in it, they certainly cannot fail to succeed.

GLASGOW VETERINARY COLLEGE.

THE Christmas examinations of the Royal College of Veterinary Surgeons were conducted within this Institution on the 20th and 23rd inst. The Board of Examiners included Sir Henry Simpson, J.P., F.R.C.V.S., Windsor; George Fleming, LL.D., C.B., etc., London; Messrs. J. Roalfe Cox, F.R.C.V.S, London; Pritchard, F.R.C.V.S., London; Duguid, F.R.C.V.S., London; J. Vaughan, F.R.C.V.S., London; G. Banham, F.R.C.V.S., Cambridge; J. Freeman, F.R.C.V.S., Dublin; Prof. Hamilton, F.R.C.S.E., etc., Aberdeen; Prof. McKendrick, LL.D., Glasgow; Prof. Almond, Cirencester College; Messrs. W. B. Walters, F.R.C.V.S, Aldershot; T. H. Simcocks, F.R.C.V.S., Drogheda; Thomas Campbell, F.R.C.V.S., Kirkcudbright; Finlay Dun, F.R.C.V.S. Edinburgh; H. Olver, F.R.C.V.S., Tamworth; W. Woods, Jun., F.R.C.V.S., Wigan; E. F. Herrown, King's College, London; J. F. Simpson, Jun., J.P., M.R.C.V.S, Maidenhead; and R. Rutherford, F.R.C.V.S., Edinburgh. There were also present as *ex-officio* members: Principal McCall, F.R.C.V.S., President of the Royal College of Veterinary Surgeons; Professors S. Cooke, F.C.S.; W. Limont, M.A., M.B.; and Mr. J. McIntosh McCall, M.B., C.M., M.R.C.V.S.; Mr. J. Kirk, M.R.C.V.S.; and W. S. Johnson, Secretary.

Twenty gentlemen presented themselves for the first (or theoretical) part of the final examination, and of these the following seventeen were successful, viz.: Messrs. P. Connolly, Warrenpoint, co. Down; A. J. Milligan, Dalbeattie, Kirkcudbright; C. M. Seely, Lincoln; J. B. Muter, Glasgow; L. Crook, Eccles, Lancashire; A. S. Hill, Ballynahinch, co. Down; W. H. Wilkinson, Flint, North Wales; F. J. Boyle, Ballymoney, co. Antrim; R. P. H. Dalglish, Glasgow; Archibald Millar, Lochwinnoch, Renfrewshire (g.c.); John Kinnear, Glasgow; T. H. Griffin, Sherries, co. Dublin; B. Ferrie, Paisley, Renfrewshire; W. S. McMurrich, Helensburgh, Dumbartonshire (g.c.); C. A. Squair, Kildrummie, Nairnshire; John Meikle, Stranraer, Wigtownshire; and William Logan, Ayr. The following gentlemen passed the second (or practical) part of the final examination, and succeeded in obtaining the diploma of the Royal College of Veterinary Surgeons, viz.: P. Connolly, A. F. Milligan, T. B. Muter, A. Hill, R. H. Dalgleish, A. Millar, J. Kinnear, T. H. Griffin, B. Ferrie, W. S. McMurrich (g.c.), C. A. Squair, J. Meikle, W. Logan, and D. Clark, Kilmartin, Argyleshire.

Eight students presented themselves for the "B" or second professional examination, and of these the following were successful, viz.: Messrs. H. A. Hazeel, Dunson, Argyleshire; H. L. Chambers, Ballynahinch, co. Down; Robt. Mason, Glasgow; F. T. Barton, Glasgow (v.g.c.); and W. M. Williams, Groeslon, Carnarvonshire.

Thirteen students presented themselves for the "A" or first professional examination, and of these the following were successful, viz.: Messrs. William McRobbie, Glasgow; F. W. Thompson, Formby, Lancashire; A. C. Howat, Pollokshaws, Renfrewshire; D. S. Horiston, Port Glasgow, Renfrewshire; J. Paterson, Uddington, Lanarkshire; W. L. Mackenzie, Govan, Renfrewshire; and F. Dyke, Cardiff, Glamorganshire.

NATIONAL VETERINARY BENEVOLENT AND MUTUAL DEFENCE SOCIETY.

List of Subscriptions to the above for 1890.

1890.		£	s.	d.
Jan. 1	Mr. Olver	1	1	0
,, 1	R. C. Trigger ...	0	10	6
,, 3	F. G. Samson ...	0	10	6
,, 3	J. C. James	0	10	6
,, 3	J. Overed	0	10	6
,, 3	S. Locke	0	10	6
,, 3	C. Sheather	0	10	6
,, 3	G. Nuttall	0	10	6
,, 3	W. Whittle	0	10	6
,, 3	H. Thompson ...	0	10	6
,, 3	J. Freeman	0	10	6
,, 4	W. Bowers	0	10	6
,, 4	H. G. Gibson ...	0	10	6
,, 4	W. H. Webb... ...	0	10	6
,, 4	E. A. Leach	0	10	6
,, 4	E. Oliver	0	10	6
,, 4	H. W. Caton ...	0	10	6
,, 4	G. Rugg	0	10	6
,, 5	E. Banham	0	10	6
,, 5	R. Cox	0	10	6
,, 5	R. S. Reynolds ...	0	10	6
,, 5	F. Dunn	0	10	6
,, 7	J. B. Taylor	0	10	6
,, 7	H. Hogben	0	10	6
,, 7	T. G. Chesterman ...	0	10	6
,, 7	H. J. Goodall ...	0	10	6
,, 7	W. Woods	0	10	6
,, 9	Professor Walley ...	0	10	6
,, 9	W. Roots	0	10	6
,, 11	Wm. Carless... ...	0	10	6
,, 11	Elam and Jackson ...	1	1	0
,, 11	R. C. Edwards ...	0	10	6
,, 11	G. Morgan	0	10	6
,, 14	J. M. Axe	0	10	6
,, 17	P. Taylor and Son ...	1	1	0
,, 17	R. Cartwright ...	0	10	6
,, 17	Osborn Hill	0	10	6
,, 17	Batt and Son... ...	1	1	0
,, 18	B. Cartledge... ...	0	10	6
,, 18	R. Ridler	0	10	6
,, 18	T. G. Angers ...	0	10	6
,, 20	Edwin Faulkner ...	0	10	6
,, 22	P. M. Walker ...	2	2	0
,, 22	H. Olver	0	10	6
,, 24	R. Mackinder ...	1	1	0
,, 24	C. Moir	0	10	6
,, 24	T. Danby	0	10	6
,, 27	W. Dobie	0	10	6
1890		£	s.	d.
Jan. 29	T. D. Broad... ...	0	10	6
,, 31	J. Anderton	0	10	6
,, 31	T. Deighton	0	10	6
,, 31	Mr. Scrivens... ...	0	10	6
,, 31	J. Bale	0	10	6
Feb. 2	T. Ambery	0	10	6
,, 6	T. Baker	0	10	6
,, 8	J. Rowe	0	10	6
,, 10	F. T. Stanley ...	0	10	6
,, 11	T. Secker	0	10	6
,, 12	T. Hopkins	0	10	6
,, 14	A. Over	0	10	6
,, 16	Ball and Son... ...	1	1	0
,, 16	T. Barker	0	10	6
,, 22	T. Collins	0	10	6
,, 22	B. Russell	0	10	6
,, 25	J. Ferguson... ...	0	10	6
,, 25	James Storrar ...	0	10	6
,, 25	J. L. Carter	0	10	6
Mar. 1	J. and A. Lawson ...	1	1	0
,, 25	T. D. Lambert ...	0	10	6
,, 29	W. F. Peacock ...	0	10	6
Apl. 15	J. B. Wolstenholme...	0	10	6
,, 25	T. Pratt	0	10	6
June 5	J. Woodger	0	10	6
July 24	W. A. Field	0	10	6
Aug. 31	Thos. Greaves ...	0	10	6
Sept. 7	A. R. Perrins... ...	1	1	0
,, 7	T. A. Dollar... ...	0	10	6
,, 14	G. Newsom	0	10	6
,, 14	W. Williams... ...	0	10	6
,, 24	Mr. Ferguson ...	0	10	6
,, 25	T. Briggs	0	10	6
,, 25	Leather and Son ...	4	4	0
Oct. 6	T. W. Cave	1	11	6
,, 9	Mr. Beddard... ...	0	7	6
,, 10	Mr. Beddard... ...	0	3	0
,, 10	G. E. Bowman ...	1	11	6
,, 12	A. H. Jacobs... ...	1	11	6
Nov. 21	James Clarke ...	1	1	0
,, 29	H. Blunt	1	11	6
,, 29	J. L. Barling... ...	0	10	6
,, 29	C. Hartley, E. Fee & Sub.	1	11	6
,, 29	Mr. Kitchen	1	1	0
		£63	10	6

THOMAS GREAVES,
Hon. Treasurer.

January 13th, 1891.
Audited and found correct,
EDWIN FAULKNER

THE VETERINARY MUTUAL DEFENCE FINANCIAL STATEMENT,
From January 1st to December 31st, 1890.

CASH RECEIVED.

1890.	£	s.	d.
Balance in Bank, January 1st, 1890	501	2	9
Subscriptions in 1890	63	10	6
Bank Interest, June	5	14	3
" " December	4	1	3
Cash in hand, January 1st, 1890 ...	4	6	4
Excess of Cash put into Bank ...	3	9	6
	£582	4	7

CASH PAID.

1890.	£	s.	d.
April 22nd—Cash to Mr. C. Moir ...	17	18	6
March 29th—Cash paid Cobbet and Wheeler	0	10	6
Sept. 20th—Rooms	0	15	0
Wrappers, Stamps, etc., etc. ...	2	0	0
Sundry other expenses	1	0	10
Sept. 12th—Transferred to Benevolent Fund	400	0	0
Dec. 31st—Cash in Bank	159	19	9
	£582	4	7

THOMAS GREAVES.
Hon. Treasurer.

January 13th, 1891.
Audited and found correct,
EDWIN FAULKNER.

THE NATIONAL VETERINARY BENEVOLENT FINANCIAL STATEMENT,
From January 1st to December 31st, 1890.

CASH RECEIVED.

1890.	£	s.	d.
Balance in Bank, Jan. 1st, 1890	463	0	8
Cash in Mersey Docks	1,900	0	0
Sir F. Fitzwygram (donation) ...	1	0	0
Four Dividends from Mersey Docks	73	7	4
Bank Interest, June and Dec. ...	9	6	7
Cash from Defence Fund... ...	400	0	0
	£2,846	14	7

CASH PAID.

1890.	£	s.	d.
Sept. 29th—Cash put into Corporation of Manchester	900	0	0
Cash in Mersey Docks	1,900	0	0
Dec. 31st—Cash in Bank	46	4	7
Cash in hand	0	10	0
	£2,846	14	7

THOMAS GREAVES,
Hon. Treasurer.

January 13th, 1891.
Audited and found correct,
EDWIN FAULKNER,
JNO. B. WOLSTENHOLME.

Army Veterinary Department.

Gazette, December 19th, 1890.

ARTILLERY VOLUNTEERS. — 3rd Kent (Royal Arsenal). John Stone Channon, gent., to be Veterinary Surgeon.

Gazette, December 30th, 1890.

Veterinary Surgeon, First Class, Adam Cuppage Webb resigns his Commission.

Gazette, January 6th, 1891.

T. G. Peacocke, gent., to be Veterinary Surgeon (ranking as Lieutenant), in succession to Veterinary Surgeon, First Class, A. C. Webb, resigned.

Veterinary Surgeons E. H. Kelly and J. Loughlin have embarked for a tour of service in India.

Veterinary Surgeons Dwyer and Hazleton have arrived in England from a tour of service in India.

Obituary.

THE veterinary profession will hear with deep regret of the death of John H. Steel, F.R.C.V.S., Army Veterinary Department, which occurred at Bombay on January 20th, at the early age of thirty-five years. Three years ago Mr. Steel suffered from a severe attack of liver-disease, culminating in abscess, which necessitated his return to this country, when operative interference probably saved his life. Though earnestly persuaded by his friends not to risk exposure to the Bombay climate again, at least for some years, he nevertheless returned to his official duties at the Bombay Veterinary School,

and, persisting in working as closely and indefatigably as before his first illness, he has paid the penalty.

Those who knew our deceased colleague, the work he has accomplished, and the phenomenal enthusiasm and ability which he brought to bear on everything he undertook, will agree with us in mourning his untimely death, and in the opinion that, by this bereavement, veterinary science has lost an earnest and a talented devotee.

Mr. Steel graduated in 1875, and soon after joined the Army Veterinary Department; in this he only remained a short time, as he accepted an appointment on the teaching Staff of the Royal Veterinary College. This position he found after a brief period unsuitable, and rejoined the Army, soon afterwards proceeding to India. Stationed at Bombay, he commenced a career of wonderful activity. Mainly through his influence the Bombay Veterinary, School was established, and as Principal he was instrumental in making it a most useful and recognised educational establishment. By the authorities in the Bombay Government his services were highly appreciated, and the annual reports of the School afford evidence that he well deserved all that was said of him by those who were made aware of what he had done and was doing for the Presidency. In fact, Mr. Steel was a most valuable public servant outside the College, and in everything relating to animals he was consulted and valued as an authority. This caused him to be elected to discharge many functions beyond his own special duties. The Governor of Bombay, Lord Reay, appointed him a Justice of the Peace, and the Bombay University conferred upon him the honorary degree of Fellow.

His writings are numerous and well-known. We may mention his Outlines of Equine Anatomy, Diseases of the Elephant, Canine Pathology Bovine Pathology, and the quite recent Treatise on the Diseases of the Sheep. He was also one of the Editors of the *Quarterly Journal of Veterinary Science in India* (Mr. Fred Smith, Army Veterinary Surgeon, being the other), and in this periodical appeared many valuable and interesting papers from his pen.

He was a Fellow of the Royal College of Veterinary Surgeons and of the Zoological Society, and it was owing to his efforts that the National Veterinary Association was begun; he was its first Secretary.

To the deep regrets we experience at this heavy loss, must be added our sincere condolences to Inspecting Veterinary Surgeon (retired) Charles Steel, F.R.C.V.S., and the family of our deceased friend.

Mr. J. W. Callow, M.R.C.V.S., died at Burgess Hill, Sussex, on January 12th, aged 61 years. He served in the Army Veterinary Department for a considerable time, and on retirement commenced practice at Burgess Hill.

From Colorado, United States, comes tidings of the death of W. R. J. Mitchell, M.R.C.V.S., who graduated so recently as 1887. Having studied Veterinary Medicine at the American Veterinary College, New York, he came to this country and on the usual conditions became a member of our College, returning to the States, when Phthisis attacked him; it was while in search of amelioration that he succumbed.

The following deaths have been reported:—

G. Goodacre, M.R.C.V.S., Crowle, who graduated in 1876.
T. A. Clarke, M.R.C.V.S., Horncastle „ „ „ 1855.
C. H. Arnold, M.R.C.V.S., London „ „ „ 1869.

Notes and News.

PROFESSIONAL TITLES IN ITALY.—The Prefect of the Province of Milan recently sent a circular to the mayors of all places within his jurisdiction instructing them to set the legal machinery provided for that purpose in motion

against all and sundry who shall dub themselves "Doctor" or "Professor" without possessing any valid claim to these titles. The Prefect points out that the usurpation of academic degrees and professional titles is more frequent, as well as more serious in its possible consequences, in the medical profession than in others, According to him, it is quite a common thing for practitioners of "minor surgery" (*bassa chirurgia*), and even "dentists," to call themselves "Dr.," "Professor," etc. The only persons who have a legal right to these learned prefixes are, as the Prefect says, those who have obtained the Degree of Doctor from a University, or have had the title of Professor conferred on them by the Minister of Public Instruction.

TUBERCULOSIS AND ACTINOMYCOSIS IN AUSTRALASIA.—We learn that in Australia, Tuberculosis in rabbits and cattle is frequently confounded with Actinomycosis. In Queensland, a peculiar form of Cancer is found in the human subject, attacking the parotid region, and ending fatally. It is more prevalent in the district where cattle are affected with Actinomycosis, and medical opinion tends to show that the disease is a similar affection to the so-called cancer in cattle, Actinomycosis is, next to Contagious Pleuro-pneumonia, the most prevalent of chronic affections in Australia, and is constantly being mistaken for Tuberculosis—an error which should not occur where careful microscopical examinations are made.

THE EFFECTS OF SEVERE WEATHER ON BIRDS.—A correspondent of the *Standard*, writing from Yeovil, says:—The severity of the pangs of hunger among birds, brought about by the recent severe weather, has had a rather forcible illustration at Horsington, Somerset. It was noticed that one of a herd of cows had a hole in its back, near the root of the tail, deep enough to receive a large-size hen's egg. It was afterwards found that other cows in the herd had also wounds on the back, which could not be accounted for, and it was subsequently discovered that the mischief was caused by magpies, who, driven by hunger, had resorted to tearing flesh from the animals. For their protection it was deemed expedient to remove the cows from the field.

A VETERINARY SCHOOL IN CUBA.—By a decree of the Queen Regent of Spain, dated June 30th, 1890, a Veterinary School has been established in Cuba, at Puerto-Principe.

Correspondence.

CHEAP FOOD OR WANT.

SIR,—Want or semi-starvation for the masses, the impoverishment of many capitalists and manufacturers, and agitations leading possibly to riots, appear to threaten, unless cheap, healthy, abundant food is speedily secured for our poor and comparatively poor.

1. Man by labour, or inherited labour called wealth, must get fed regularly and fed cheaply. His digestion requires a wide and varied diet. In our cold, damp climate where sunshine is comparatively rare, every man should obtain at least one daily meal of fish or meat.

2. Owing to faulty distribution and preservation, much of the fish and meat consumed by the poor is often wretchedly inferior and exorbitantly dear. Hence, perhaps, their excessive tendencies to alcoholic drinks and tobacco, which at least please their palate.

3. The producer provides cheap, excellent frozen meat, poultry, and game, which too rarely reach the consumer except when sold as and at the high prices of home-bred, fed, and killed animals. Legislative interference should prohibit such fraudulent trading.

4. Our fresh food markets, whose charters and existence were granted to

bring the producer and public together, are now usurped by a handful of capitalists who have cleverly cornered the public markets and their entire fresh food supplies, so as to sweat the producer, semi-starve the masses, and over-charge the classes.

Cobden's free trade principles have been so engineered that the producer gets no profit because the middlemen gain all.

As regards fish, the Billingsgate Ring excludes the public, the fishmongers, and the costermongers from purchasing except from the Ring, who cling to perpetuating Bacterial Billingsgate with all its avoidable abominations and augmenting abuses.

Hence stale fish continues at famine prices instead of cheap, fresh, imperishable fish.

Every day of the year 2lbs. of bled, gutted, cleaned, dry-air frozen (imperishable) fresh herrings (about six fish) could be profitably retailed by costermongers for one penny, or 2lbs. of sprats for one halfpenny.

5. The Billingsgate Ring, by a shrewd system of cruel, crushing mortgages on the uncaught and caught fish, enslave and impoverish the indebted fishermen.

According to Cahill's evidence before the Corporation, 1881 Fish Enquiry, "The practice in Billingsgate Market is that its Ring realises the highest price it can and returns the sender *what is expedient*, or what may be agreed on among its members. This ring very often after agreeing on the price to be sent to the senders, so distrust each other that they exchange account sales enclosed in open envelopes, so that "A" reads, seals, and posts "B's" sales, and *vice versâ*" (pages 656 and 657).

To keep up the price of fish much is destroyed by the Ring, who ruin our national fisheries and fishing industries.

6. Our manufacturers will soon be unable to compete with foreigners, who obtain cheaper labour because of cheaper food.

Hence the land, buildings, and plant of the British manufactories will suffer increasing depreciation, their labourers and those dependent upon the earnings of the labourers, will find their occupation gone.

7. Large pauper, police, prison, and asylum establishments, an expensive army and navy being fed by the public purse, dear food means sweating the taxpayer.

8. Hence the question of cheap, healthy, abundant food should be carefully considered by Parliament and the County Councils.

9. By means of retail stores, and costermongers for the poor, the producer should sell fresh food direct to the consumer.

17, Burlington Street, Brighton. J. LAWRENCE-HAMILTON, M.R.C.S.
January, 1891.

DISGRACEFUL CONDUCT.

SIR,—Is it not time the members of the veterinary profession took serious notice of the way in which their calling and themselves are being covered with disgrace by a few ill-conditioned individuals, who care nothing for the damage they may inflict on the entire body, so long as they can eject their venom upon individuals of whom they are jealous, or against whom they have some personal spite. We have evidence of this almost every week in London, and generally every three months in Edinburgh, the same evil spirit showing itself in both capitals with regard to veterinary matters. Such scandalous conduct is most prejudicial to our profession when confined to veterinary periodicals, but it is far more so when it is exhibited in the public press generally. Edinburgh within the last few years has made itself rather notorious in this direction. There it was that the National Veterinary

Association received its first damaging thrust, by one teacher going out of his way to attack a rival teacher at its first meeting there. A prosperous Veterinary Society there was broken up through the behaviour, or misbehaviour, of an incompatible individual. There the examiners of the Royal College were insulted and assaulted by rowdy students—under the incitement, probably, of some cantankerous person, and their names were not divulged; and there the examiners have, twice a year, to carry out the examinations under police protection. All this is very bad, and we need not be surprised to learn that veterinary science is held in very low estimation in the Scottish capital; how could it be otherwise, when the above statement is taken into account, and when the following correspondence—which appeared in the *Edinburgh Evening Dispatch*—is read? What must the public think of the Dick College and the veterinary profession on reading the letter of "*Esprit de Corps*," who I would fain hope, and indeed strongly suspect, is not a student. It is a foul bird which defiles its own nest, and the writer of such a letter well deserves expulsion from the ranks of a profession which he so unworthily represents. He would not dare to write in the same way of the medical profession.

A feeling of sorrow must be experienced at the thought of such a malicious slander on the profession issuing from an institution bearing the name of Dick. Surely the light of other days has faded.

Here is the correspondence, *apropos* of "Pink-Eye" and "Whisky," and I trust the readers of the VETERINARY JOURNAL will well consider it. The Principal of the Dick College does not appear to have repudiated the letter written from his school, pretending to be expressing the sentiments of his students. Are we to understand that he, by his silence, shares the opinion of "*Esprit de Corps*" as to the whisky-drinking proclivities of his professional brethren? I would particularly call attention to the remarks of the editor of the *Evening Dispatch*, appended to "Practitioner's" letter, which seems to throw some light upon who the cowardly fellow is, who is not ashamed to pen his vile slander from Dick's College under a *nom-de-plume*, certified to by a false name. F.R.C.V.S.

"PINK EYE.

"(To the Editor of the *Evening Dispatch*.)

"Dick's College, December 11, 1890.

"SIR,—Seeing in a recent issue of your paper 'that a large percentage of horses down with pink-eye have died that were treated by Professor Walley with what you are pleased to call the whisky cure,' and as the paragraph in question is calculated to give the impression that the horses were really *poisoned* by the administration of too much whisky, and that on the authority of Professor Williams, I write to assure you that such was not the case, and that the following are the facts:—

"Five horses have certainly died from the effects of the disease in its worst form.

"Three of the horses died which were given no alcohol whatever. The other two were ordered it when indeed it was necessary, and only then, but the amount given to each animal did not exceed half a pint! Seeing that the best human surgeons prescribe alcohol in particular stages of influenza, furthermore that the treatment of the horse in this disease is precisely similar to that of man, it follows as a logical fact that this treatment of Professor Walley's was a correct one.

"Besides, if Professor Whalley did order whisky to be given, and his clients did give it, it shows to a certain extent that they were men of substance, and not only could afford to pay for their treatment, but also for their whisky, which is too often not the case with other clients.

"Also, if Professor Williams did not prescribe that golden specific, 'the whisky cure,' in his diseased cases, he does in other diseases, including all his ownest, ownest, own—and that, too, in what most veterinary surgeons (and they as a rule can raise their elbows) would say were most immoderate doses.

"As the paragraph in question has deeply wounded the *amour propre* of the 'men of Dick's,' and as they resent such an unprofessional attack on their chief, and as there are always two sides to a question, I trust you will publish this protest in the columns of your paper.—I am, &c.,

"ESPRIT DE CORPS."

"PINK-EYE AND CLYDE STREET COLLEGE.

"(To the Editor of the *Evening Dispatch.*)

"December 13, 1890.

"SIR,—If the Principal of the Clyde-street College does not possess tawse, he should procure a pair and apply them to the boy who sent you the ungentlemanly and vindictive letter of the 11th inst. I take for granted the author is a boy, as no gentleman, or any one with a particle of sense, would have given vent to such debased feelings. It is to be hoped he will never have the chance of disgracing the veterinary profession. '*Esprit de Corps*,' forsooth! I pity the Clyde-street College if this is a sample of it. Things were different when your humble servant studied within its walls.—I am, &c. PRACTITIONER.

"[We regret that in the letter referred to, one of the paragraphs was susceptible of a meaning which we did not suspect at the time. We did not imagine that any one connected with one College would adopt this manner of casting a reflection on the professional character of a rival. For our own part, we have to apologise to the respected Principal of the New College for the fact that our columns should have been made the medium of a most ungenerous, spiteful, and unjust attack.]"

AN INTERESTING CASE.

DEAR SIR,—The following are short notes of an interesting case:

Fox-terrier, suffering great pain for nearly fifteen days, howling awfully at intervals, day and night, but eating and drinking as usual. He would get into a corner, and resting his head against the wall, howl very much. A *post mortem* examination revealed intense blackness of the minute plates of bones of the nostril, with inflammation, mortification, and sloughing of the same.

"FEW WORDS."

PROFESSIONAL ADVERTISING IN IRELAND.

SIR,—I enclose some advertisements from local papers for your opinion as to whether such announcements will help to elevate the position of the profession. "JUSTITIA NON AMICITIA."

[The notices forwarded are from several Cork newspapers. Two of these vaunt the remedy for Anthrax introduced by Mr. Phelan, M.R.C.V.S., and another has the following advertisement, which we publish without correction or comment:—

"TO FARMERS AND LARGE GRAZIERS.—Anti-Anthrax, or Black Quarter Preventative (protected), prepared solely by G. Phelan, M.R.C.V.S., Cork. Charge 1s. per head, post free, which shall be refunded if an animal so dosed should die of Anthrax, or Black Quarters."]

CAN IT BE TRUE?

SIR,—An incident happened a little over a year ago, the inference from which may account for a good deal of what has surprised and disgusted many among us within the past two years. Mr. Hunting was elected President of the Central Veterinary Society twelve months ago, and in that capacity was Chairman at the annual dinner. When the time for the usual toasts arrived he declined to propose that of the Queen, with remarks of an uncomplimentary character. There were, I believe, several gentlemen of the Army Veterinary Department present, one of whom protested against this mark of disloyalty, which one might expect at a meeting of Irish rebels, but certainly not at a gathering of British subjects. Had such an insult been offered at any other respectable meeting, I fancy the Chairman would quickly have found himself on the wrong side of the door, or compelled to give the toast. The wonder is that gentlemen holding Her Majesty's commission remained in the room, for surely they had no business in such company, witnesses to an insult offered to their Queen. Need we wonder at the malignant attacks on individuals—attacks which have done the veterinary profession great injury—when even Her Majesty, who, we presume, has done Mr. Hunting no harm, is treated with marked disrespect by him? Avernus does not appear to be very distant, after all.

ANTI-ANARCHIST.

Jan. 16th.

NOTICE.

We are requested to announce that the annual meeting and dinner of the Lancashire Veterinary Medical Association will take place at the Victoria Hotel, Manchester, on Friday, February 6th, at 4.30. p.m.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from T. B. Goodall, Christchurch: F. Smith, A.V.D., Aldershot; Professor McKendrick, Glasgow; J. A. Nunn, A.V.D., Lahore, India; J. Lawrence Hamilton, Brighton; A. W. Hill, London; Professor McCall, Glasgow; R. W. Burke, A.V.D., India; T. Hopkin, Manchester; R. Rutherford, Edinburgh; J. C. James, Thornbury; J. T. Duncan, Toronto, Canada; "Few Words;" W. Awde, Stockton-on-Tees; C. Cunningham, Stateford; F. C. Mahon, London; T. Greaves, Manchester; "Justitia non Amicitia"; "F.R.C.V.S."; "Anti-Anarchist;" G. Gartside Mayor, Kirkham.

BOOKS AND PAMPHLETS: Bulletin des Seances de la Societé Nationale d'Agriculture; Dog-Owners' Annual; Vinton's Agricultural Almanac; Proces-Verbal de l'Academie Royale de Medecine de Belgique; *A. Lydtin*, Anleitung zur Ausubung de Fleischbeschau.

NEWSPAPERS: *Edinburgh Evening Dispatch; Yorkshire Herald; York Evening Press; Baltimore American; Cork Herald.*

JOURNALS, ETC.: *Quarterly Journal of Veterinary Science in India; Mark Lane Express; Revue Vêterinaire; Annales de Médecine Vêterinaire; Repertoire de Police Sanitaire Vêterinaire; American Cultivator; Recueil de Médecine Veterinaire; Clinica Veterinaria; Echo Veterinaire; Moderno Zooiatro; British Medical Journal; Journal de Medecine Veterinaire; Holstein Frisian Register; Deutsche Zeitschrift fur Thierheilkunde und Vergleichende Pathologie; Lance; Oesterreichische Zeitschrift für Wissenschaftliche Veterinarkunde; American Veterinary Review; Wochenschrift fur Thierheilkunde und Viehzucht; Thierarzt; Journal de Medecine Veterinaire et de Zootechny; Edinburgh Medical Journal; Live Stock Journal; Journal of the Royal Agricultural Society of England.*